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PREPARING FOR MOTHERHOOD

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A Guide for the Care and Training of the Expectant Mother

BY

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PREFACE

MOTHERHOOD is the loftiest and holiest of ambitions. Motherhood itself—the power to give birth to a human being who actually is flesh of one's own flesh, part of one's own self, brings a joy than which there is nothing greater nor more divine. Motherhood is the crowning glory of a woman's life. It gives to life a new meaning—a meaning such as it is impossible to attain in any other manner.

But motherhood is a not unmixed blessing. The many physical and psychic disturbances; the pains that may be as great as any human ever is called upon to bear; the too frequent wrecking of the health or the protracted convalescence and even the sacrifice of life itself are all common experiences as a result of pregnancy today. It is these which cause so many women to fear motherhood and even marriage.

Unfortunately today the importance and the glory of motherhood are not recognized as they should be. Among civilized peoples, marriage itself is put aside until a later time than under simpler conditions of life. Because of the delay, and the consequent increased length of time in which harmful living habits of modern civilization are at work in modifying all tissues and functions of the body, the period from conception to childbirth is one of misery, and childbirth itself is an agonizing nightmare for a large percentage of women today.

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The primitive mother knows but little of those terrors that are so agonizing to the civilized mother. Her body has been prepared for motherhood. It is strong, vital, splendid. Unfortunately, this cannot be said of all civilized mothers. To the savage woman the period of pregnancy presents little inconvenience; she need not exempt herself from any duty to which she is accustomed.

This book attempts to bring the vitality and vigor of the natural life to the women of civilization to so many of whom it is unknown.

The pain of childbirth is often cruel. It is a pain the like of which no man can comprehend. Is it a curse placed upon woman for the sin of Eve? It is stated in the Great Book that God said to Eve when driven from Eden, "In sorrow thou shalt bring forth children." Must women continue to suffer in childbirth and through the preparatory months in the belief that the suffering is necessary and unavoidable and the cause of it unnatural?

No! The pain and the dangers of pregnancy and of parturition, or childbirth, are not given for cause; they follow causes as results. They are unnatural, and harmful. Except for the development and use of anesthetics, the further the advancement in civilization the greater the abnormality in this respect—the greater the suffering, the more severe the after-results, and the more danger to life itself.

Women of all countries suffer in childbirth. But the universality of the suffering is less general and

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less severe in most countries than it is in America. Among aborigines of India, China, Japan, Australia, New Zealand, South America, Africa, and on most Eastern and Southern islands of the oceans, childbirth is not the exhausting and enervating process it apparently is in the United States. North American Indian squaws know little of such suffering. It is a well known fact that many Indian women have given birth to babies while on the trail from one place to another, and have caught up with and continued along with their tribe—not, however, without occasional harmful results from hasty deliveries and premature travelling and exertion. The more primitive the people, the freer are their women from the inconveniences and dangers of pregnancy and the pangs and dangers of childbirth.

This is no mere coincidence. The suffering of a large proportion of women of civilized countries, especially of the United States and Europe, is a direct result of over-civilization—the breaking of many laws of hygiene and of health. It is not a necessity *because* of civilization; but the further we advance in culture and refinement the more lax we seem to be in matters of diet, exercise, clothing, bathing, rest and relaxation. And it is this deviation from Nature and her requirements for health that makes pregnancy often a nine-months' trial for many women, and childbirth often a long anticipated physical and mental shock.

A woman never becomes a real woman, the ideal feminine until she has borne a child. The condition of

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pregnancy, which is a perfectly natural condition, is a period during which the health of a woman should reach its height. Even though perfectly normal before pregnancy, she should develop still greater physical vigor, heightened nervous energy, and increased mental faculties.

Instead of this sublimation of womanhood through motherhood, there is unfortunately often a realization of adversity, perhaps a physical or psychic calamity! When a woman gives birth to a child she should not feel that she enters the "valley of the shadow" and that when she enters that condition leading up to birth she begins her long march toward that "valley." She should rather realize that bearing children is a God-given privilege, that it is a natural and not a pathological process and that it should and can be passed through with safety and without undue suffering.

It is for the purpose of assuring such a happy dénouement that this book has been written. The aim in presenting it, in its improved form, is to bring to its readers the realization that childbirth can be the safe and comparatively painless process that I am convinced it naturally should be and is in savage life and in the animal kingdom. Human beings are animals and are subject to the same laws governing their physical bodies that govern the bodies of the lower animals. Except in some cases of domestication, animals usually give birth to their young very easily and there are no lingering infirmities. In this book we present the means whereby the human female may

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pass through this period also with comparative ease. While the normal may not be secured in this generation, much can be learned; much can be done toward this end.

Moreover, future generations will benefit by fitting the present generation for as nearly normal pregnancy and childbirth as possible, through handing down knowledge of how to live normally and properly, thus building up an improved physical condition in future generations—at least in so far as that knowledge and physical condition are related to these functions and powers.

We hear much of race suicide. Families are becoming progressively smaller. I have no fear for the future of the race from this cause. Thoroughly opposed to the childless home, I believe that every married couple should have some children to cement the marriage relation, balance the home and make for happiness, contentment and the permanence of the marriage relation.

It may be said that some women are not to be blamed for shirking motherhood, with the many hazards which they feel that it involves. But when it is recognized that these hazards are largely the result of improper living habits, largely through ignorance, and that they can easily be avoided, the tendency to shun her highest duty, surrender her holiest privilege, should not exist in any woman.

To the end that women may accept their right to motherhood without fear and trembling, that they may

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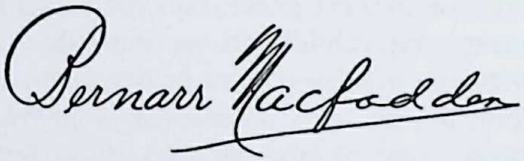
look forward to the birth of their children with joy unshadowed by apprehension or dismay I present this book—for the needed relief of womankind and the betterment of those whom womankind gives to the world.



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PREPARING *for* MOTHERHOOD

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Preparing for Motherhood

CHAPTER I

The New Motherhood

DURING the past generation motherhood has taken on a new meaning. The wife of today is not resigned to motherhood by chance, with possibly handicapped offspring fighting a losing battle. Eugenics has become a factor in the selection of marital mates, from the standpoints of personal satisfaction and improved offspring. Improvement of the race is a more important consideration today, than is "blind love," or convenience, or expedience. Perhaps propinquity, or close association, has always led many youths and maidens to misinterpret comradeship or agreeable companionship or a certain similarity of interests as love, with an ignoring of physical and hereditary qualifications. Today many of those in search of life mates are more careful to let love grow where there are greater assurances of better parenthood and better, more perfect babies.

Woman's most important function and crisis is motherhood. In the past there has been widespread ignorance, and sometimes pride in that ignorance, regarding this glorious period of womanhood. But arrival at this period with total lack of preparation is no longer almost universal. Motherhood today is con-

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sidered not unlike a profession: it is to be prepared for just as any other life work is to be prepared for. Certainly no association of duties and joys is more worthy of being made a life work than are those of motherhood, and assuredly no life work can be more important.

Movements of vital importance necessarily move slowly. Mass education is a gradual process, and much is still required before motherhood is universally accepted for its full importance. There still remains much of the ignorance that made it possible for a woman to give birth to many children and raise to maturity only a minority of them. Hence it falls upon those who have benefited by the newer knowledge to help in its dissemination to those in need of it.

The New Motherhood is not strange or unique, or difficult of understanding and application. It is simply a change, a reversal from modern civilization's detrimental living habits to habits more in accord with Nature, together with a thorough understanding of all that should be known by a prospective mother about maternity and its climax, childbirth. It means full preparation for maternity's sacred responsibilities.

Health Should Be Enhanced

The first great truth regarding natural motherhood is that the suffering of motherhood and the enervation and invalidism following childbirth are needless in most cases. Except in some instances among domestic animals, the carrying of the unborn and the delivery

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of young among even the higher orders of living creatures are unattended by physical disturbances. Too often, however, the health of women is wrecked by maternity. With the knowledge of this universal, it is an experience often dreaded. All this can and should be changed, when it is realized that the fulfilment of woman's highest possible function should instead serve to complete her physical, mental and spiritual maturity—which is possible only through motherhood.

Often the greatest objection to motherhood is fear of loss of figure. This often is feared more than the possible danger of loss of health. But the fact that a great many mothers have retained their physical attractiveness should indicate to all who hold this fear that there is no reason why the body should decline in beauty through motherhood. The function of reproduction is too natural for it to necessarily involve a loss of bodily beauty in those who possess it before entering motherhood.

It is true that women may lose their figures when maternity is entered without physical preparation or when all the laws of health and personal hygiene have been neglected during this period. But the strong, vital woman whose body has received the benefit of proper physical training and is inherently strong, or who has reason to take pride in her vigor and aliveness, need have no fear of physical decline or of loss of physical beauty through so natural a function as maternity.

Maternity does bring about and is associated with

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profound physiological changes, and childbirth likewise has its resulting important processes. Without these associate and resulting changes these functions would not be the epoch in a woman's life that they are; they could not perfect a woman mentally and spiritually. But physically they constitute such a natural and normal function that there should be no resulting disturbance of the bodily health or reduction of bodily beauty. Many women have become vastly more perfect of body after the complete cycle of maternity than before. None need to become less so.

Motherhood in Civilized Women

Pregnancy and childbirth occasion little discomfort and no infirmity in the women of savage races and tribes. The chief reason for this is that these women live close to Nature in their daily lives and throughout their lives. Their duties and pleasures, their work and in many instances their recreations are such as to build up and maintain vigorous bodies, buoyant, resilient, self-reparative. Another important reason is that these simple women have no fears, dread or apprehension. They enter marriage knowing they will become mothers. They encounter maternity knowing no reason why they will not reach and pass its climax in perfect safety, and usually with comparative ease.

With civilized women, however, there seems to be less ability to pass through and terminate maternity with similar ease and safety. But there is only a *seeming* loss. The civilized woman still is inherently strong

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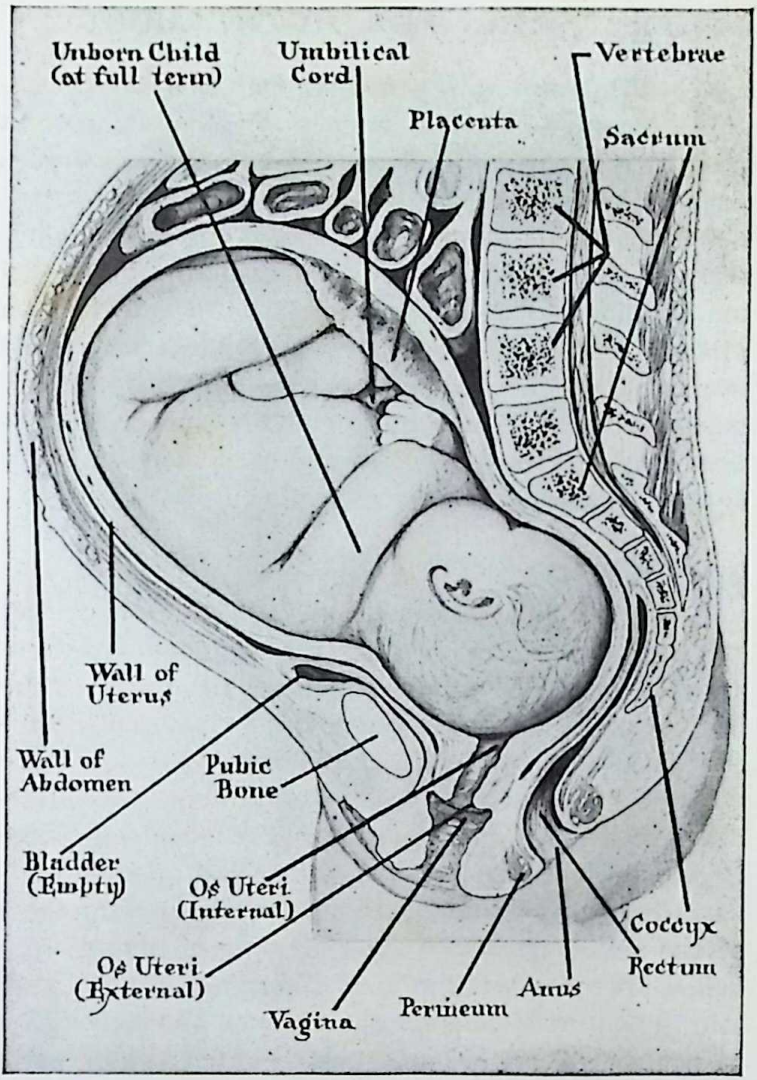

A sectional view of the abdomen and pelvis at the close of the last month of pregnancy would show conditions similar to those in this diagrammatic illustration. Various positions may be taken by the child within the uterus at this time, but the head, the body and the limbs are most frequently presented in the position here shown.

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and healthy, and with proper preparation will be capable of going through pregnancy and childbirth as safely as the woman of less advanced peoples goes through them. The new motherhood is to some extent a return to the natural conditions of our early, primitive ancestors. And just as the primitive women of today recover their full degree of health and strength after pregnancy has been terminated, modern civilized women should be able to do likewise. The fact that many do not do so, indicates not simply inherent weakness, but abnormal living habits that are amenable to correction through proper education.

Abdominal Support Through Exercise

A valuable thought in connection with the body and health-promoting exercise is that only comparatively recently in the evolutionary process have we become upright animals, changing much of our muscular support and of our exercise requirements. Previously we crept, then changed to a semi-upright position alternated with the all-fours position. The complete change to the upright position brought with it some disadvantages, not yet fully overcome. Various structures of the abdominal walls and within the abdomen were called upon for new duties of support, and this strain and "unnatural" position has produced much liability to prolapsus. The "unnatural" weight and pressure thrown upon the pelvic floor by the abdominal and pelvic contents have produced a weakening of this floor, also a tendency to pelvic prolapsus.

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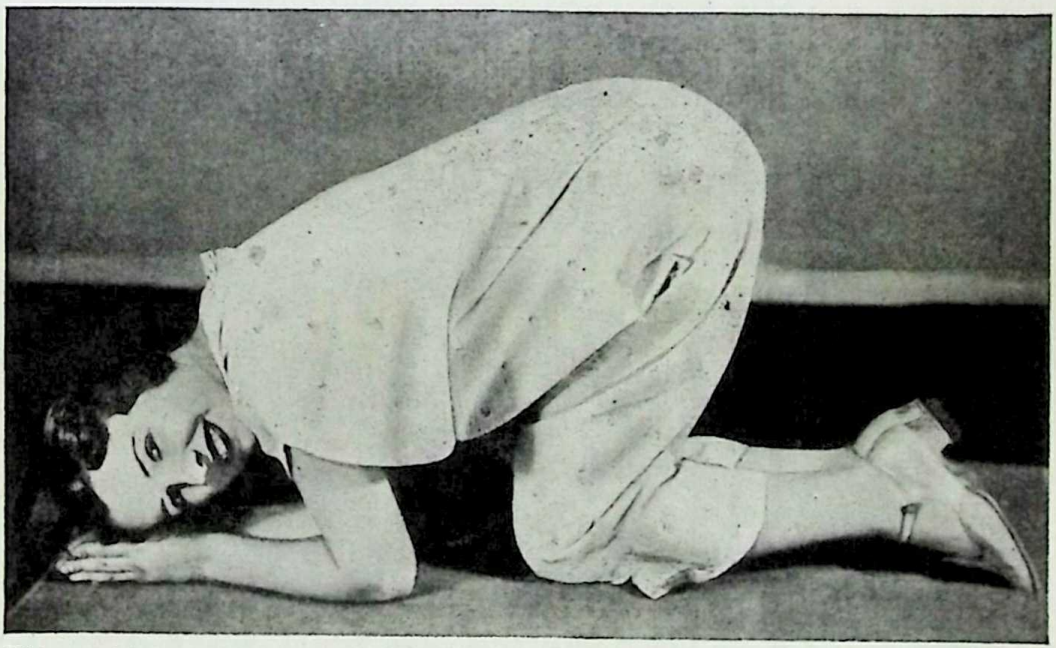

This position on knees and elbows often called the knee-chest position, tends to relieve strain and pressure during pregnancy. It should be assumed for as long a time as it proves comfortable. During early months walking about on hands and feet in a similar position also is of value.

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Therefore, in our exercise for the purpose of correcting this tendency and for strengthening the abdominal walls and pelvic floor and structures, somewhat more attention should be given to movements of the trunk, pelvis and hips than to leg and arm movements. No new muscles need to be developed; it is merely a matter of strengthening those already existing. Dr. Alfred C. Jordan has stated that "Man, by assuming the upright posture, has forfeited the hammock-like support of the abdominal wall, but he is still dependent upon the muscles of the anterior abdominal wall to keep the viscera (organs) in place."

If this abdominal wall is not strengthened, there can be but the result of displacement of the abdominal contents, which means interference with position or function, or both, of the pelvic organs. By a correct type of exercise these muscles and those of the hips and pelvis can be developed and strengthened quickly and effectively at almost any age.

Gravity Exercises

Proper posture and carriage are of vast importance at any time in life, but perhaps especially so during pregnancy. Poor posture tends to crowd the digestive and other abdominal organs downward. This usually leads to a variety of symptoms, involving the digestive organs and the bladder particularly. To overcome these, and for general health value, exercises on an inclined support, head downward, are of great benefit. Some helpful movements in this inclined position are

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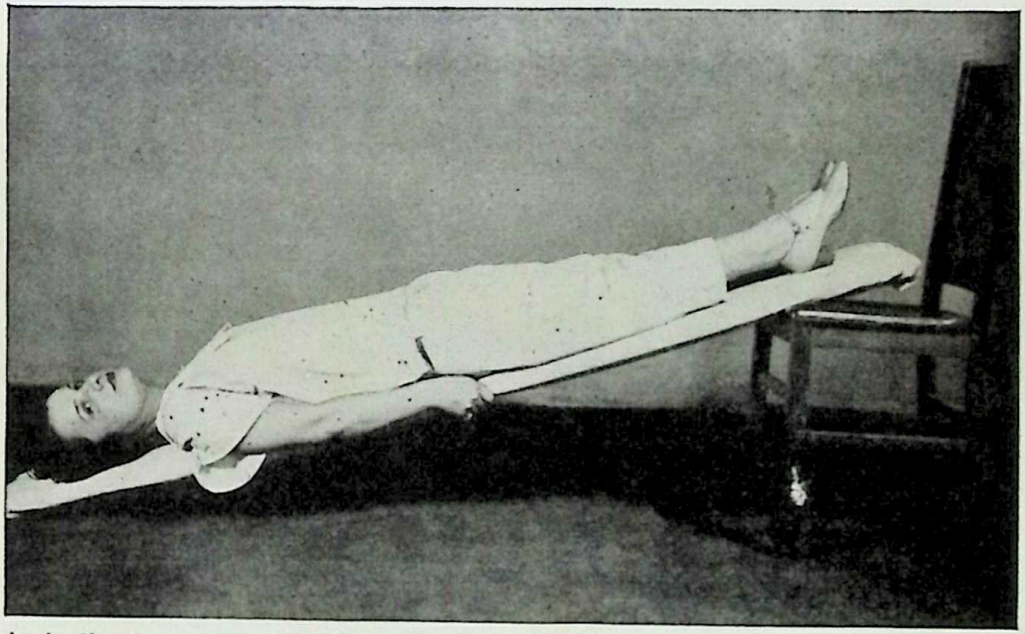

An inclined support on which to take exercises or to rest is useful during pregnancy. A large board, perhaps an ironing board (preferably padded and covered with cloth), may be placed with one end upon the floor, and the other end elevated on some secure object. A cot or bed may be used by elevating one end.

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illustrated in this book. The mere position of resting on the back, with the hips higher than the shoulders, often will very quickly relieve some of the pains and aches of pregnancy.

The position on knees and elbows is extremely effective as a means of relief from the discomforts due to pressure upon the large veins returning blood from the lower extremities. In this position the uterus is suspended downward and away from the other organs, so that the pressure upon them and upon the veins is temporarily relieved. Many pains are stopped instantly by assuming this position, and the frequent pressure upon the bladder is especially relieved in this way.

Motherhood Not a Sacrifice

It has been only a comparatively few years since it was quite generally believed that health of the mother necessarily must be sacrificed for the sake of her child. It is true that Nature does endeavor to perpetuate the race by striving to produce the most perfect offspring possible. It can do this only with a perfect supply of materials with which to build. If the mother does not provide these materials through her diet and otherwise, then Nature will deprive her of some of them in order to build better for the newer generation. In this way many women have sacrificed their health, even their lives, for the sake of their children. But this sacrifice is wholly unnecessary. Motherhood is and should be considered a fulfilment, not a sacrifice; a divine priv-

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Lying upon an inclined plane, as illustrated, and keeping the knee straight, raise one leg as high as possible and repeat until slightly tired. Then, lying upon the other side, perform the movement with the other leg. This and similar movements may be performed with vigor during the earlier months of pregnancy.

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ilege, not a punishment; a blessing, not a trial. It will be all it was intended to be if the health is built up for it and if Nature is provided with the materials for building normal children.

Woman was meant for child-bearing. Otherwise woman would not be adapted to serve as the distinctly feminine half of the race. Without motherhood a woman's life can never attain physical completion. She may, through sublimation, really accomplish more in some respects than she otherwise would have done. But a woman who through sublimation of sex accomplishes anything worth while, in all likelihood would have given to the world children who would have triumphed as greatly or more greatly. The heartache of a woman who realizes too late that she has sold her birthright to motherhood for a bauble or bubble is one that cannot be eased by any possible substitute. So, you who yet have fruitful years of your life ahead of you, whether young or not, make no mistake, look far into the future, and so build your bodies that there need be no fear of an ordeal and of health and figure impairment through your most glorious privilege, that of motherhood.

Healthy, Perfect Babies

Given normally healthy parents, practically every baby will be healthy and perfect. Nature works that way. She builds the most perfect miniature humans possible. But there must be healthy germ-cells for the beginning, a healthy mother-home for the development

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period, and the provision of every element of building material and every factor concerned with the building if the building is to be perfect. Babies that are not "prize babies" have been deprived of some influence that could have made them perfect, or have had some handicapping influence that overweighed some of the normalizing influences.

Some adverse influences can be overcome later in life, but some never can be. If there has been a too pronounced hereditary influence toward nervous or mental instability, or if the male and female germ cells originating the new life have been damaged by poison so that they do not give rise to a healthy embryo, the influence may and usually will affect the offspring throughout life. But in spite of apparent parental handicaps and harmful influences, most babies are born with sufficient vitality and capabilities for health to enable them to develop into robust children and strong, vital men and women.

The old-fashioned mother with old-fashioned methods of bringing up babies has given way to modern hygienic baby care. In consequence there are far fewer old-fashioned baby funerals. In other words, child mortality has greatly reduced in recent years. It is this saving of more babies that has decreased our death-rate during the present century. But even so, there still is too much illness in infancy, there still are too many baby deaths, babies still are cared for too haphazardly in many homes. The women of New Zealand, a land considered by the uninformed as in-

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habited solely by bushmen and other savages, have a better knowledge of how to prepare for and care for babies than the women of the United States, as revealed by the fact that there the death-rate of infants is considerably below the rate in America. But regardless of how low, comparatively, the infant death-rate may be in New Zealand or anywhere else, it is quite certain that it could be reduced much more if motherhood were prepared for by physical fitness and if there were adequate and more general education regarding the proper care of children.

Still-Births Can Be Decreased

A number of years ago the New York Milk Committee conducted an experiment in proper care and observation of expectant mothers, which yielded very gratifying results in the reduction of still-births and early deaths. Every ten days each of the 3,145 women (in the four years of the experiment) was visited by a specially trained nurse, and as often as necessary by a physician. She was examined for abnormal conditions, and was given treatment for such if found, before childbirth. The health of the expectant mother and her family was looked after also in necessary ways by various agencies. The women were under supervision approximately three and one-half months before, and one month after, confinement.

To these 3,145 mothers were born 3,192 babies. Of these 113 were still-births, making 36 per thousand, a reduction of 22 per cent. over the 46 per thousand for

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the entire Borough of Manhattan, New York. Of these 3,192 babies, 86 died during the first month after birth, making 28 per thousand, a reduction of 28 per cent. over the 39 per thousand for Manhattan. Five of the mothers died, a maternal death-rate of 1.5 per thousand, or a reduction of 69 per cent. over the 4.9 per thousand for Manhattan. If the same care had been given the mothers throughout the Borough of Manhattan during the same period of time there would have been a great saving of babies, and a marked saving of mothers.

Training in motherhood, or preparation for maternity is being increasingly recognized throughout the world. There are "motherhood schools," where the duties of the young mother or the expectant mother are explained. Russia is one of the most advanced countries today so far as is concerned this preparation for maternity through the imparting of instruction to prospective mothers. In some of the more advanced colleges for women in our own country the students are taught much regarding motherhood and its requirements, and they even are taught properly to bathe and dress an infant, employing "live models."

The Unmarried Mother

The State and society at large are showing much greater liberality toward the rights of the unmarried mother to satisfactory protection. This is as it should be. The child of the unmarried mother should have

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as good an opportunity to develop physically and mentally as any other child. There may be illegitimate conduct, but there can be no such thing as an illegitimate child. The sooner the State and society recognize this the better it will be for many unfortunate girls and women and their children. Without adequate protection in every respect for the unmarried prospective mother and mother there cannot be the opportunity for physical nutrition and mental calm for the mother, and these will be reflected upon the child.

Unmarried mothers are entitled by law to practical recognition as legal wives in many European countries today, and their children are recognized as legitimate —with full right to claim support from the father whether he be single or already married to another woman.

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CHAPTER II

The New Obstetrics

NOT until the last two or three decades has there been any attempt at standardization of obstetrical (confinement or childbirth) procedures. Within the memory of most of us in or above middle life we have passed through stages of neighbor wives assisting the mother herself, the midwife, the patient general practitioner, or so-called family doctor, the self-styled specialist, and the real, modern obstetrician with his obstetrical nurse.

We cannot admit that all of the modern methods employed by physicians, surgeons and specialists are commendable. But we must acknowledge the superiority of the modern obstetrical methods over the haphazard and dangerous methods formerly employed. If women were properly educated for motherhood and lived as they should live for the best health of themselves and their offspring, such scientific methods as obstetricians now employ would perhaps, not be necessary. We must consider that without such methods the race has continued, that savage women normally give birth to their young without any of the modern aids, and that the inherent ability of women to bear children has not been lessened appreciably.

Unfortunately, the need for education seems to be less felt generally, by the profession and the women

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themselves, than is the need for careful, scientific methods at the time of delivery. In this instance values are turned around. Education is the more important. But whether or not there has been proper education and proper living prior to delivery, there always comes a time in pregnancy when delivery must be considered, when it must be accomplished.

The experience of most physicians will confirm the statement that many of the ills of women which physicians are called upon to treat date from childbirth. Some say that most of these ills have their origin at this time. Many of the ills, as well as many of the deaths, result from infection at or immediately following delivery. These cases of infection are due mainly to carelessness—of the mother in her mode of living and of the physician or obstetrician during pregnancy and delivery—and therefore are avoidable. Not only the infections but many other ills common to pregnancy or as a result of it are due to the same lack of care by the woman or physician—toxemias, including eclampsia, serious kidney and heart diseases, abnormal presentations, anemia, displacements, and other abnormal conditions.

Can any condition call for greater care, greater preparation, greater knowledge of every phase concerning it, than that period when woman gives her greatest gift to the world—a new life? Woman alone can offer the gift of life. Should she, in offering this life, incur risks that can be avoided? We face the fact that many, many thousands of these givers of life each

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year lose their own lives in this giving, and uncounted thousands lose their health more or less permanently. Do we not need to demand greater preparation of the mother and prospective mother and of that branch of the medical profession that has taken over the specialty of childbirth, in order that such shameful conditions shall be corrected?

Better counsel, better service are needed more at this critical time when a woman is bringing forth a new life, in order that she herself may escape the supreme sacrifice, than at any other time in her life. She also needs from those in attendance upon her at this time more tenderness, more sympathy, more encouragement and more assistance. In order that these may be provided there should be as complete training and as thorough experience as possible by those who will wait upon her at this time.

While pregnancy and childbirth constitute a phenomenon that should be natural and physiological, it is not a simple process. It is to be expected that the conditions and circumstances affecting the mother during and after pregnancy and the actual delivery of the child should bring about constitutional, physical and mental changes. Throughout the entire period during which her child forms such an intimate part of her—from the moment of conception to the weaning of her child—the woman has lived a new life and passed through a new experience, both of which must leave their imprint upon her. This imprint should be other than physical, however, and evidence improvement.

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The health of the new mother after delivery and that of the new babe depend upon how well the various organs of the mother's body function during her new experience of pregnancy. Every system within her body passes through changes—digestive, nervous, eliminative, glandular, circulatory, also bony and and muscular structures, as well. These changes should be natural because they are physiological when normal, and they should be unnoticed in the sense that there should be no apparent lessening of the feeling of health and normal activity. But in far too many instances they are abnormal, pathological.

Many women do pass through the periods of pregnancy and childbirth with no apparent trouble or injury, and from this some are inclined to believe that the actual delivery of the child may be left in the care of anyone who happens to have seen a few cases of delivery and assisted in others. This "taking things for granted" has been responsible for much of the troubles, mild, serious or fatal, that have become such prominent features of this phase of a woman's life. Many of these troubles have been due primarily, as stated before, not so much to inefficient attention at childbirth, but to improper preparation of the woman before this climax to pregnancy.

It also has been stated before that normal maternity is found in primitive races, and that in these races childbirth is more nearly the natural phenomenon that it should be. There is a vast difference between such women and the modern woman of civilized countries,

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however, and the latter cannot well afford to overlook the safeguards developed by scientific obstetrics. If the primitive women occasionally have local or general disorders resulting from childbirth, certainly the civilized woman cannot neglect all necessary precautions without likelihood of undesirable after-results.

We know that the normal woman (if such there be in civilization) has a good chance of having a normal physiological childbirth that leaves no harmful effects upon herself and her child. *But most women are abnormal,* in some respect and in some degree. Hence normal reproduction—maternity and childbirth—is not common. For this reason one should have the care and service of an attendant who looks upon each case of childbirth as potentially a pathological (an abnormal) case—and handles it as if it were such until it proves to be otherwise. The attendant who *assumes* that everything is normal until it proves abnormal is not unlikely to be confronted with a condition fraught with danger to both mother and child; and because of this delay in determining the nature of it, harm to one or both may be unavoidable.

Scientific obstetrics has made great advancement during the past few years, largely because those who have specialized in it have had high ideals and recognized the great need for increased knowledge, abundant experience, thorough preparation—that perhaps no branch of the profession requires more attention and careful study. The leaders of the New Obstetrics have taken from all other sciences all that was

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good and serviceable for this one profession or study.

No longer does the specialist who considers himself an obstetrician conduct a labor case on the hit or miss plan, trusting to good luck for a quick and safe delivery, and believing that the few lacerations that might result can be repaired without harmful results to the mother, and that other mishaps of childbirth are "decreed by Providence" or otherwise equally unavoidable. Instead, the modern obstetrician regulates the life of the mother during her pregnancy, corrects or modifies ailments associated with her condition, looks for and alleviates or reduces abnormalities, prepares for events that cannot be foreseen, handles the case during labor with the greatest precision and care, repairs whatever injuries he may have been unable to prevent, and looks after both mother and babe until they are out of danger.

Formerly those who handled obstetric cases knew little or nothing of the *possible* complications; certainly they were in no way prepared to anticipate events, but took things as they came, the unavoidable with the avoidable. The modern method is to study the case from various aspects, noting the abnormalities and their possible relation to and effect upon later stages of pregnancy and upon childbirth, so that when possible these may be reduced or made inoperable for harm. In other words, it is the aim of modern obstetrics to give to every woman, alike in humble home and palace, every advantage of science in taking her through her period of life-giving as safely as possible.

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The old method was to go blindly at work on a case of which practically nothing was known, possibly hastening the progress and the actual delivery when services were required elsewhere. The new and safer method is to give Nature every chance, interfering only when Nature has done all she can do yet fails. The new obstetrics "trusts Nature, but keeps its eyes open for her shortcomings."

In spite of the great advances made in obstetrics, during the same years in which the advances were made there has been little change in the death-rate of confinement cases. It fluctuates from year to year. The greatest maternal mortality in obstetrical cases would naturally be supposed to occur in the tenement districts and the slums in the larger cities, and in the poorer homes in the rural districts, yet investigators have apparently shown that this may not be always the case, and that the percentage of deaths is often higher in hospital than in private practice. This is suggested in a report in the *Journal of the American Medical Association* for January 7th, 1933, in which Drs. Lee and Siedentopf report that "the increasing preference of the hospital as a place of delivery, one of the most marked changes that has taken place during the past few years and is growing, seems not only not to have bettered the results but seems actually to have made them worse. . . . Numerous authors call attention to the high institutional mortality compared with that of deliveries in the home."

The maternal death-rate in obstetrical cases, is how-

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ever tremendously high, and sad to say it is much higher in the United States than in many other countries. As a matter of fact twenty-four foreign countries show a lower death-rate than this country of ours. Dr. R. W. Holmes of Chicago has set forth the mortality rate per 10,000 live births in the following countries.

Sweden	23	England-Wales	41
Denmark	26	New Zealand	42
Norway	27	Switzerland	44
Netherlands	27	Spain	44
Japan	27	Germany	49
Italy	28	Belgium	50
Finland	29	Australia	53
Uruguay	30	Canada	57
Hungary	32	Chile	58
Czechoslovakia	34	San Salvador	62

United States ... 65

It will be seen by the above that at the time the reports were obtained the United States headed the mortality list.

The November 21st, 1932, issue of the *Journal of the American Medical Association* contained an article which condemned forceps delivery as dangerous to mother and child, stating that the operation was too often undertaken in bungling fashion with consequent infection, laceration, and infant mortality. Again there is hardly a doubt that more women die from blood poisoning than are reported for the reason that doctors do not like to report this cause of death, feel-

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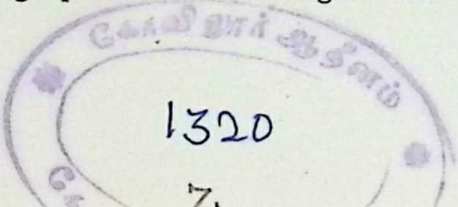
ing that it may be considered a reflection upon their ability.

The keynote of modern safe obstetrics is "surgical cleanliness." Everything that comes in contact with "the field of operation," and that field of operation itself (the birth canal and the external portions of the maternal body with which the attendant or attendants are directly concerned) are kept in as thoroughly clean condition as possible—as regards asepsis and antisepsis. The same precautions are taken as if the case were to be a major operation. Where these methods are employed, even women coming from unsanitary homes or depths of squalor may be brought through the zero hour of confinement with less danger to themselves and their babies than women from better environment may come through when the attendants are neglectful of cleanliness.

There is a crying need today for better instruction in this branch of the medical profession. Every medical graduate who contemplates entering the field of obstetrics, or every physician who turns to that branch of the profession without adequate experience, should take special study and receive special training under those fully qualified by years of actual contact with maternity cases.

Frequent examinations belong to the new obstetrics. Only in this way can the progress of the pregnant woman be determined as safe and normal. Yearly general examinations are becoming common nowadays, as a means of checking up one's various organs and



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functions and to detect any incipient disorder that may be developing. This is one of the best forms of life insurance. Frequent examinations of the pregnant woman also constitute an excellent life and health insurance. Only when the woman's condition is observed by regular examinations can the obstetrician know that the woman is progressing favorably and that there will be no serious organic or functional disturbance in the last days of pregnancy to complicate the delivery or endanger the woman.

Frequent examinations of the urine and blood pressure should be made, for by these may be detected beginning toxemias that can be prevented from further development, and probably corrected entirely. Especially should the woman who has functional or organic disorders before pregnancy have such regular and frequent examinations. Particularly in case of a first child should measurements of the pelvis be made and all structural peculiarities noted. By such examinations the physician is able to determine whether a normal delivery is possible, what degree of abnormal delivery likely will result, and whether surgical interference will be necessary.

It will be seen from this that modern obstetrics has small place for the old-fashioned midwife. She is totally unprepared to give examinations of value, hence is unprepared to determine beforehand whether the case will be normal or abnormal. In the past the midwife has been called the friend of the poor because she conducted confinement cases for small fees and

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frequently took full charge of preparation of meals for the mother and looked after the baby, as nurse. She usually required less supplies for conducting the case, thus saving the mother expense of buying equipment. In cities and larger towns where there are outpatient facilities the midwife is not needed. But even in smaller places there usually are physicians who have had much more experience and far more training than have midwives, and in preference to midwives, the expectant mother should consult these when such facilities are not available.

As most accidents and infections of maternity develop because the woman's true condition was not discovered, the prospective mother should be in the care of one who is able not only to determine the abnormal conditions, but to correct them when found. If there are any infections in the mother these should be treated, for her own safety and for the safety of the expected child. The life of the woman should be directed, as to her diet, exercise, bathing, relaxation, and in every other way, with the view to safe maternity throughout.

The care of the mother does not end with the delivery of her child. For some time after delivery both mother and child should receive careful attention in various ways. Injuries to the mother should be repaired, attention should be given to the prevention of displacements, the diet should be regulated so as to insure best health of the mother, and best milk for the babe. In fact, nothing should be left to chance,

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but everything should be mapped out for the greatest health of both mother and babe. This is the duty of the obstetrician of today.

With all this I have said in favor of better obstetrics, it must not be considered that safe maternity depends entirely upon the physician handling the case. As I shall bring out in various ways in future pages of this book, more depends upon the mother herself than upon the physician. It the mother does not conduct her life in such a manner as to conserve her health at a high degree or to build health if necessary, the physician cannot insure a safe delivery. Usually the physician is not concerned with painless childbirth: his chief concern is *safe* childbirth, from the standpoint of the life of the mother and babe and preservation of the mother's tissues and health in as nearly normal condition as possible. The mother herself usually will have to look after her daily regimen that will have for its aim a painless or comparatively painless delivery.

And the same is true in regard to normal and safe pregnancy throughout. If a woman lives in a way to retain or improve her health during pregnancy she may be safer in the hands of a midwife or a poorly equipped physician than the woman who disregards all health rules, but has the most skillful obstetrician obtainable.

The combination of suitable health program and capable assistance at the time of childbirth, in fact direction throughout pregnancy, is by far the better

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way, since modern woman has digressed so far from normal living habits and normal health.

Mothers should train their girls from childhood to maturity for motherhood. This is one way of insuring their health in later years and the health of their offspring. Far too few parents look upon their children as future parents, yet most of them become parents. Then they should be *trained* for parenthood! They should be fed, exercised, rested, clothed, bathed, educated along various lines, stabilized nervously and emotionally, and their instincts should be developed normally. Not in "twilight sleep," nor anesthetics, nor limitation of offspring, but in adequate preparation for motherhood and then good care when needed, depend safe motherhood and freedom from fear and dread of painful childbirth.

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CHAPTER III

The New Motherhood and Eugenics

EUGENICS is the science of race improvement. It is a subject in which every woman is interested. It is natural for every woman to desire that her children be as perfect, physically and mentally, as possible.

One aspect of eugenics concerns hereditary influences. The other aspect concerns the health, vitality and quality of the blood so that best health may be possible regardless of hereditary influences. Both aspects are very important.

The young woman anticipating marriage should not be concerned mainly with the selection of a life partner for herself. She is selecting the father of her children. His personal qualities will be handed down in some measure to her children, and there also will be transmitted to them certain qualities of other members of his family. Therefore, it is important to consider not the prospective husband alone, but the various members of his immediate family, and if possible for generations back. One marries an individual, but that individual represents generations of different individuals, of different types and qualities. As a husband and companion, you marry only the one man; but as a parental possibility, you practically marry his family.

It is the inherited qualities that one transmits

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rather than acquired qualities. A man may be a much better paternal parent though uneducated, than another with all possible educational opportunities, simply because of a better inheritance and a better mental and nervous stability. If one has investigated a prospective mate's family history, it will be much more trustworthy as an indication of possible qualities to appear in one's children than if one stops with the prospective mate and goes no farther back.

Genius Often Undesirable

It often is stated that genius borders on insanity. Certain it is that the genius often has an unstable nervous system, is erratic mentally, and frequently is subnormal physically. In many cases, genius springs forth from a family stock transmitting qualities of nerve and mind that are wholly undesirable in one's offspring. For this reason it is not advisable, as a rule, to select a genius for a life mate. However, if such an individual is found desirable and personally possesses a high degree of physical health and reveals none of the eccentricities in general of genius, and came of satisfactory stock, of course there can be no objection to such as a companion and parent of one's children.

Because of the multiplicity of grandparents back of any individual, with their diversity of temperaments and physical qualities, the different children in one family will vary widely. This is because inheritance is not uniformally from father and mother alone, but is a mixture of the ancestry, with each child taking on

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more of the characteristics of one ancestor or member of a family not in direct line (such as an uncle or aunt), while another child will inherit more from another member of the family. It will be seen from this how important is it that one's family stock be investigated or known when selecting a life mate and parent of one's children.

Health of Mate Important

Not infrequently, however, an individual from not too perfect stock seems to have developed all the excellent qualities, physical and mental, available in past generations and is fully capable of passing on these qualities. If there has been no insanity or other extreme mental or nervous defects and no extremely early deaths from degenerative diseases, and no extreme drunkenness in the direct line of ancestry, such a man would make a desirable mate and parent.

Alcohol has an extremely disastrous effect upon the germ-cells or procreative-cells. Often stillbirths result from chronic alcoholism in the father or mother. Such defects as epilepsy and insanity are common, and such degenerative diseases as those of heart, kidneys, lungs and other organs frequently result from alcoholism.

Cousin Marriages

Marriage of close relatives has been taboo in civilized countries for many centuries. These "consanguineous marriages," as concerns first cousins, are forbidden by law in many countries.

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The reason for the objections to such marriages is the tendency of similar undesirable characteristics, inherited by both parents, being transmitted to offspring. Yet, among the ancients such marriages, even including those of brother and sister, were common. Cleopatra was a daughter of a brother and sister and a great granddaughter of Berenice, who was both cousin and sister to her husband. Yet, history records nothing concerning her physically and mentally that reveals other than a normal body and an alert mentality. Recently attention was brought to a colony on one of the South Pacific Islands, consisting of two hundred and more individuals. These were all direct descendants of a few men and women who were stranded on the island a century or so ago. Hence, there has been intermarriage throughout this time and also many instances of marriage of close relatives. Yet there was no member of the colony who was in any way physically or mentally defective or subnormal. Contrariwise, there is a direct antipathy to permitting sexual intercourse with near relatives, and the violation of this, constituting incest, is considered one of the gravest crimes among civilized peoples.

However, in regard to cousins, if the family stock is such that from neither one of the two there is likelihood of passing down defects; there will be no increased likelihood of transmitting such defects when the two unite to produce offspring.

It is when one or the other (or both) is in some measure defective that marriage between them should

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not take place. This is because the one not showing the defect, probably has latent within his or her body some of the factors responsible for the abnormalities in the defective one, and the combination of these factors from the two will in all likelihood result in transmission of such undesirable qualities or even pronouncedly worse qualities.

Physical Examinations Before Marriage

There have been moves under way to make it compulsory for those contemplating marriage to undergo physical examinations to determine physical fitness for marriage. There is no compulsion in this respect, but either the man or woman involved should be willing to undergo an examination if the other desires it to be done. It is particularly important, however, for the woman to ascertain the physical fitness of her husband, because it is far more often through the husband that certain diseases are transmitted to her or to offspring, and it is to prevent these that such examinations are advocated.

The two diseases that are so often transmitted are gonorrhea and syphilis. Gonorrhea is responsible for disease in countless women, and a great many of the operations required upon women are due to this local but insidious infection. The disease is not transmitted to children, but the life-cell often is so weakened that the child is less robust and more susceptible to disease and various adverse influences. Also, such infection of the mother, even though she

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may be more or less resistant, may result in gonorrheal inflammation of the eyes of the new-born, with the loss of eyesight if proper steps are not taken promptly to prevent this.

Syphilis is the blood "social disease," which has an even more pronounced effect upon offspring. There often are telltale marks upon a child of a syphilitic parent; in fact, health is rarely satisfactory. The nervous system is unstable; epilepsy is not uncommon; insanity also not infrequently results, with any type less severe or less extreme, of physical, nervous or mental trouble, being possible.

Personally, I believe that it is not the disease so much, as the medical treatment for it that makes syphilis so disastrous to the individual contracting it and the individual inheriting it, but nevertheless, no woman should marry a man with a history of this condition unless it has been completely eradicated, as revealed by proper examinations and tests, and for a sufficient period of time to prove the lasting nature of the cure.

Health Due to Vitality

It is important that the family stock be free from special taints, as already stated. With this freedom, the other aspect of eugenics then becomes important to consider. There may be the best stock possible back of one; but if through previous disease or neglect or wrong habits of living one's vitality has become exhausted, then one will not be a good choice for a

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parent to one's children. Eugenics, outside of the aspect of heredity, is a question of vigorous health based upon vitality and pure blood. One must be fit to reproduce, or reproduction should be avoided or postponed until physical fitness has been acquired. Because of the possible effect upon one's children, grandchildren and on down the line, one should develop the highest degree of health and physical vigor possible, whether or not the heredity back of one is favorable. Both the father and the mother should develop and retain, during their reproductive period of life at least, the highest degree of health, energy and vitality that is possible.

It is criminal to bring into the world children who have less than the highest possible vitality as an inheritance. If parents insured their children's health and vitality by improving their own health to the highest degree, the standards of physical health and beauty would be raised within a few generations beyond what the world has thus far seen.

To accomplish the best results in one's immediate offspring it is necessary first that both parents have a high degree of health before conception, and that the mother's health be retained throughout the period of pregnancy. This is a matter involving every factor that has to do with one's daily living—diet, exercise, rest and recreation, sleep, fresh air and sunlight, etc. The blood must be enriched and provided constantly with every element Nature requires for building a perfect body, and also must be supplied those subtle

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factors of nutrition, the vitamins. Organic and tissue tone must be maintained by vital foods, exercise and other factors, as there is no tonic available in bottle or pellet form. Relaxation is of extreme necessity, because it is during rest and sleep that recovery of the mother's energy and, to a considerable measure, elimination of her cell wastes are possible. Her blood must be not only provided with the elements required, but daily freed of harmful elements. These subjects will be taken up in greater detail later on.

With these essentials provided and with freedom from all fears and apprehensions, there will be no occasion to doubt the successful termination of pregnancy or the transmission of undesirable physical, mental and emotional qualities to the developing child.

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CHAPTER IV

Making Motherhood Safe

EVERYONE is interested in safer pregnancy and easier childbirth. The pain and discomfort experienced during pregnancy and the pain and frequent serious injuries of childbirth make motherhood almost universally dreaded. Life itself often is in danger during this time.

In modern times the general mortality of mothers has been reduced from ten per cent. to a fraction over one and a half per cent. This has been accomplished through scientific improvements in obstetrics and in handling the maternity case from conception to the termination of pregnancy. But mortality is still too high.

Many of the disorders and accidents of pregnancy and childbirth are due to physical weakness and general unfitness of the woman of modern civilization. Modern dress of women has improved considerably, but there still is a tendency to support the abdomen by external means, rather than by well developed abdominal muscles. The general musculature of woman is inadequately developed, her diet usually is such as to deprive the body of some elements, although the diet may be in excess of body needs to such degree as to produce toxemia. In fact, her general mode of living usually is such as to unfit civilized woman for

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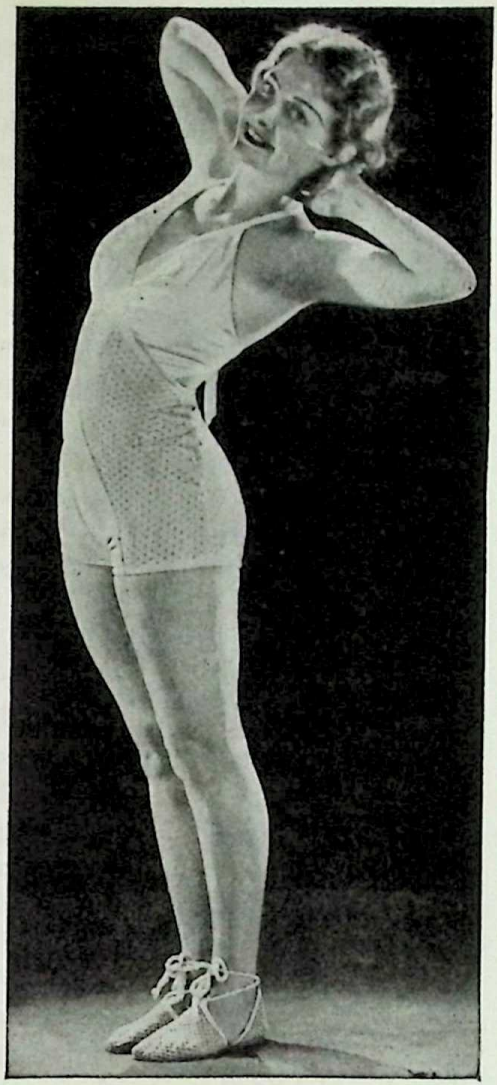
NOTE.—Exercises Nos. 1 to 4 appearing in this chapter may be used throughout pregnancy. If performed with caution they may be considered safe even in the final months of the term.

Exercise No. 1. Standing with feet together and with hands behind the head and elbows well back, bend over alternately left and right, holding the body far to each side a second or two before coming to the erect position and over to the opposite side. Repeat half a dozen times.



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her supreme experience, hence natural childbirth is all but impossible.

In order that pregnancy and childbirth may be safe and easy there should be the highest degree of health possible to develop, particularly a vigorous musculature and organic, vital health such as is demonstrated by savage women and by many peasant women of Europe.

Usually, these women wear no corsets or constricting clothing and have nothing to hamper their body and the vital organs. Also they live on a simple, more natural diet than that of women usually considered more fortunate. As a result of their mode of living, including plenty of physical activity, they develop strong, elastic bodies that make motherhood comparatively easy.

Modern Babies Have Large Heads

One reason for the easier childbirths of the more physically active savage and peasant women is the comparative smallness in size of the babies and particularly of their heads. Among the taller white peoples babies are inclined to be somewhat larger, with larger heads. This is one reason why civilized women should take every precaution to maintain a high degree of health, strength and elasticity of body tissues. However, it is not this difference in size of bodies and heads of babies that accounts mainly for the more difficult childbirth of the conventional modern mother. The main reason is lack of proper attention

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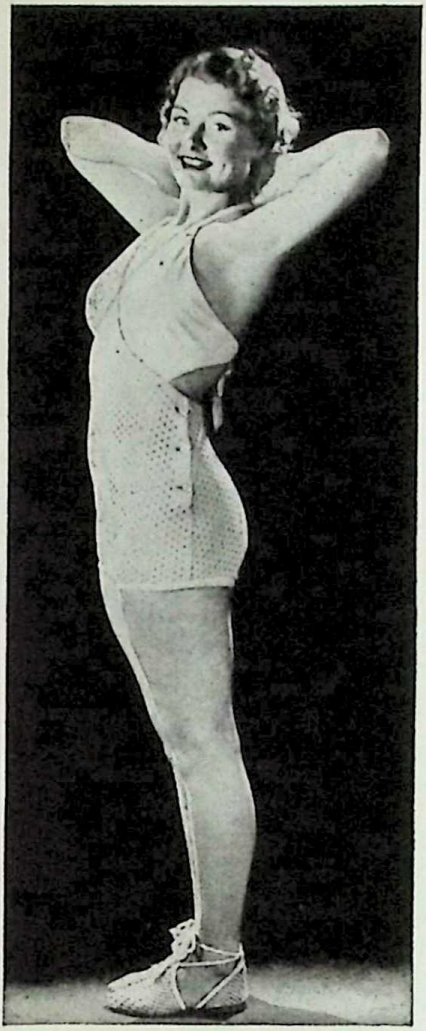
to most of the rules of natural living and personal hygiene.

Childbirth Pains Not Wholly Avoidable

It would be expecting too much to anticipate a wholly painless childbirth. The process by which the child is brought into the world is necessarily accompanied by certain muscular contractions and stretching of tissues which bring forth some degree of pain, regardless of one's natural mode of living. However, a great deal can be done to lessen the severity of this pain, and many women have been able to bear children with practically no pain.

The more impor-



Exercise No. 2. With hands clasped behind neck, perform Exercise No. 1 six or more times.

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tant aim of natural living during pregnancy is to make the pregnancy safe and to prepare the way for quick recovery to normal health and vigor. It is possible for practically any woman to so live during pregnancy that she will deliver her child without danger to herself or the child and to be restored to complete health and vigor within a short time after delivery.

There is a great difference in the physical build of different women. Often there is a pronounced contraction of the pelvis that makes childbirth difficult. In some instances this contraction is so pronounced that a full-term child cannot be delivered through the normal channels. Women with such pronounced lack of pelvic space should be advised against maternity. If they become pregnant, then Cæsarean operation will be required at full term if mother and child are to be brought through safely. There are many women without this extreme degree of pelvic narrowing who have comparatively safe, yet difficult delivery. These are among the women who need to keep their pelvic tissues in the best tone possible and to take steps to prevent the development of a large child.

Delivery of a child necessarily produces pronounced dilation of the birth canal, and it is the tissues forming this canal that are liable to be injured during childbirth. However, if they are normally strong and elastic they will be able to respond to the need and yet be uninjured, and will return to normal during the lying-in period. It is these tissues that can be made

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Exercise No. 3. Stand with feet about eighteen inches apart, arms outward on level with shoulders, head high, chest expanded. Bend body sidewise left and right, holding in each side position two or three seconds. Bend to each side four times at first, later increasing number of movements.

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more elastic and of greater strength before and during pregnancy—by methods to be outlined in later chapters.

The younger the woman, after maturity, the more likely she is to go through pregnancy and childbirth without serious accompanying or resulting disturbances. This may not always be true, but it is usual. Sometimes a woman of thirty-five or forty will have more youthful tissues than those of a woman of twenty-five. As a rule, however, after a woman reaches the age of thirty-five or forty the pelvic tissues, as all other tissues, have become more "set,"—that is, less yielding and more likely to injury upon dilation. It depends considerably upon how one lives as to whether these tissues will be firm and rigid or strong and elastic.

Exercise and Safe Birth

Considerable has been written about the importance of exercise for the pregnant woman. Some authorities recommend very little exercise other than moderate walking, while others favor a high degree of muscular strength through abundant exercise.

Neither of these extremes, in my opinion, is desirable. It is important that muscular strength and tone be normalized, because upon these depend the elasticity of both muscles and ligaments. The woman insufficiently developed muscularly may be more subject to lacerations or tearing of her birth canal than the normal woman. But likewise, the woman who has

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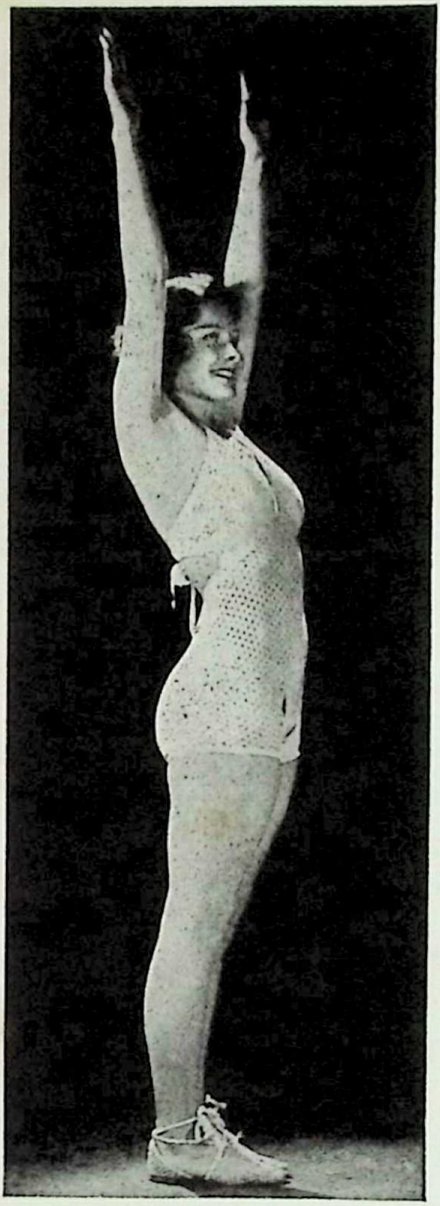

Exercise No. 4. Standing erect, arms at sides. Breathe slowly and deeply several times, with or without raising the arms and lowering while breathing in and out.

A similar breathing-exercise, somewhat more strenuous, may be performed by bending downward to touch toes with fingertips, then rising to position illustrated. Keep the chest up and the abdomen in; breathe out when bending down, breathe in when coming to the erect position.

As explained elsewhere, the simple exercise of drawing in, then expanding the abdomen, is useful during pregnancy, and may be performed in the position here shown.

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developed a rigid, more or less muscle-bound condition through over-exercise may be just as subject to such injuries.

There is comparatively little danger of over-exercising, for the reason that few are inclined that way, and particularly after pregnancy begins. But there have been some athletic women who have over-developed or over-hardened their muscles by certain types of athletics, causing difficult childbirth.

One of the benefits of regular exercise during pregnancy is often in the development of a smaller child. Inactive women are more inclined to have fat babies.

Those who are normally active will find their condition throughout pregnancy comfortable, labor more easy, and their recuperation afterward quicker and more complete.

Twilight Sleep

A few years ago, "twilight sleep" was employed in a great many delivery cases and is still used by some physicians. It is not to be recommended, and perhaps within a few years will be wholly discarded. In some lying-in hospitals its use has been entirely discontinued because of the added danger to both mother and child.

New anesthetics are being developed from time to time. One of these will be used by some obstetricians, while another will be preferred by other obstetricians. Some physicians do not believe in using any nerve-deadening means at all, as they believe that mother

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and child are both better off when the delivery is gone through unaided. There are times, however, especially when there is extreme nervousness, when an anesthetic is advisable at least to the point of reduced sensitivity to pain.

I believe, however, that if a woman has gone through the period of pregnancy as outlined in this volume and has developed her musculature, circulation and nervous system to a high degree of health and stability, she will have no need for any type of anesthetic. She will be able to depend upon the natural laws and to terminate her period of pregnancy in comparative ease and free from danger, and will have no occasion to be fearful of this period.

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CHAPTER V

Preparing for Motherhood

IN order to produce healthy children it is important not only that the mother go through the period of pregnancy in good health but that the health of both parents before conception be good. The better the health before conception the greater the vitality transmitted to the child. At the same time, the mother will be more likely to go through the pregnant period with less discomfort. Conception should not take place until both parents are physically fit for parenthood.

If marriage is entered with the expectation of having children, and the health of the prospective mother is not all that it should be for the mother's safety and the health of the children, the mother should go into training for motherhood for a year or more before conception is permitted. In this time she can bring about great changes in the quality and circulation of the blood, in the strength of her vital organs, in her cell and systemic purification, in the matter of nutrition and general vigor.

If conception has taken place before a woman has given much thought to her personal health, from the standpoint of its effect upon her offspring, then she should lose no time in adopting what measures are permitted according to the stage of the pregnancy so that her health will be improved.

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Nature protects the germ-cells against many systemic toxemias and adverse conditions. But in order to have the most vital germ-cells for transmission of the greatest vitality to offspring, it is necessary that the body be nourished with every food element and freed as much as possible from all types of toxins and poisons. Mineral acids, narcotics, alcohol, tobacco, disease toxins all must be eradicated as much as possible, and the toxins formed in the body through the daily life processes must be removed as formed so as to prevent development of any toxic encumbrances.

If such harmful agents are removed or kept to a minimum and all of the building elements and vitamins supplied in abundance, the germ-cells will have a much better chance of retaining what inherent vitality they possess.

The Need for Fresh Air

Before and after conception the vital forces of the body must not only be conserved, but increased as much as possible. One of the most important factors is fresh air. The expectant mother or the woman desirous of becoming a mother should obtain an abundance of fresh air at all times. Each day, a two-hour period should be arranged when she can be in the fresh air, during a larger part of this time walking or indulging in some light sport or activity suitable to her general condition. She should be in the fresh air during sunshine or cloudy weather, and even during inclement weather she should be so accustomed to the open air

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that she can spend this amount of time out of doors. In especially inclement weather it might be satisfactory to remain indoors, but there should be thorough ventilation of the rooms. Of course, warmth of the body is important, and if the air is cold it will be necessary to don sufficiently warm clothing, including hose, to keep the body free from chilling.

An insufficiently ventilated home retains a portion of the emanations from the lungs, and the air thus becomes vitiated and more or less poisonous. Habitual deprivation of fresh air causes such symptoms as faintness, dizziness, headache, nausea, poor appetite and anemia.

Fresh air has a very soothing effect upon the nervous system and aids in bringing quick, sound sleep. A nude air-bath is very excellent for those inclined to nervousness and insomnia. Have thorough ventilation at night. But be sure to have the body amply covered with light but warm bed covering.

The Value of Exercise

A later chapter will outline a series of exercises valuable during pregnancy and after childbirth. But in preparation for conception, exercises are equally important. Suitable outdoor exercise in abundance will strengthen and tone the muscles of the body and improve the tone of the vital organs. Exercise strengthens the heart and the lungs; improves digestion, assimilation and elimination; strengthens the nerves and improves brain function; aids the body to elimi-

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nate better through a more nearly normal skin; makes the tissues more elastic, thus aiding in assuring a safer and easier childbirth. Suitable exercises help to correct pelvic and abdominal displacements and help correct and prevent numerous of the disorders common among civilized women.

If the woman has lived an athletic life before conception and has developed good muscle tone and good general bodily vigor, it will not be necessary for her to go into any special physical training for motherhood. But it is because the majority of women have not so developed their bodies that most of them need such a preparatory period of bodily building.

Everyone should desire to be at his or her best physically and mentally. Certainly a woman entering maternity should strive to reach her best. Any weakness may indicate lowered vitality and may transmit weakened vitality. Therefore, preparatory health building is of great importance.

Prenatal Impressions

It is a common belief that a woman can "mark" her developing child during the early months of pregnancy. Because of this belief, many women go through most of the period of pregnancy fearful of having some undesired influence upon their child, through fright particularly.

It is impossible to mark a child in this manner. The great physician William Hunter, in a series of observations covering close to two thousand cases, came to

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the conclusion that there was no evidence whatever to confirm belief in this superstition. However, if one worries a great deal about the supposed danger of this transmission, then the health may suffer sufficiently to have its effect in reduced vitality of both mother and babe.

The mother is not connected to her babe through the nervous system, and it is through the nerves only that such impressions could influence the child. The only connection between the two is by a hollow cord (the umbilical cord) which carries blood and not nerve influences. It cannot convey any mental or emotional impression of any kind. The child has been placed where it is during the development period in order that it may be free from outside influences of various kinds as much as is possible, and it is wholly free from influence through the mother's desires, ambitions, dreams, hopes, aspirations, disgusts, fears, shocks and eccentric symptoms. Nor is it possible through telepathic influence to reach the child. Without a doubt, mother and babe are intimately associated; but the connection is physical, and the mother is unable to reach the child through any mental "messages," telepathically or otherwise.

The prenatal influences that really count are those concerned with food, fresh air, sleep, rest and all factors that make for normal physical tone and pure blood.

Even though the mother cannot directly influence the child through her mental processes, the months be-

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fore childbirth should be months of joy and happiness in which the mother is mentally calm and free from worry and other depressing emotional influences. Such conditions favorably influence the mother's health and thus favorably influence the child's health.

Besides, if there is an adverse environment for the mother in the prenatal months, it is likely that the child will be born into and forced to live in a continuation of those adverse influences, to its detriment.

Intelligent Birth Control

Birth control is a subject which is occupying considerable attention in the minds of thousands of intelligent women today. Legislative bodies also have given this subject consideration and reconsideration.

There are some communities in which a woman is ostracized from society if she does not bear a child within a year following marriage. In these communities, a woman who marries is prepared, mentally at least, to start a family early in married life.

In the majority of communities, however, there is not this influence to bear upon the newly married woman, and she endeavors to select her own time for beginning the family. In the majority of instances there are no reliable contraceptive measures employed, and the desires of the newlyweds are thwarted by chance conception.

There are many reasons why it may be much better to delay pregnancy, or at least to so time successive pregnancies that the health of the mother will be pre-

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served and that the ascent of the father in his business or profession will permit him to successfully care for the increasing family. Thus, there are financial and physical conditions which influence the desire of one or both prospective parents in regard to a time or times for bringing new children into the world.

Sometimes a woman marries to save a drunkard or drug addict only to find that this is impossible. She desires to avoid bringing possibly defective children into the world from such a husband, or from one capable of transmitting syphilis.

Because a child has every right to be well born it should be permissible for married couples to be able to postpone conception until they can assure that right to their children. At present it is in this country a penal offense to give out practical information regarding contraceptive measures. Recent scientific investigations, however, have established the fact, long since suspected, that there is a fertile and an infertile period in the menstrual cycle of all women. During the fertile period the woman will conceive; during the infertile period she is supposedly sterile. This being so, sexual relations indulged in during the infertile period will not result in conception. Furthermore, in deciding to indulge in sexual relations during infertile periods only, a woman is accepting an opportunity for the voluntary control of pregnancy offered by Nature herself, an opportunity which can be taken advantage of, not only with no harm to the woman, but also with a perfectly clear conscience. This subject is treated

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of extensively in one of my books, "Practical Birth Control and Predetermination of Sex," and this book is recommended to all married women who may be interested in either or both of the subjects of which it treats.

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CHAPTER VI

The Signs and Progress of Pregnancy

IT is not strange that it usually is impossible for a woman to tell whether she is pregnant, at least during the first two or three months of pregnancy.

Some women claim to be able to determine practically the instant that conception takes place—through what is considered a slight cellular convulsive seizure occurring at the time the spermatozoön contacts the ripe ovum or female germ-cell. It is doubtful that there actually exists this informative seizure. By far the majority of women never sense any change at the moment of conception nor for several weeks following.

The function of menstruation is so little understood by the average woman that a brief description of it here will be informative.

The Menstrual Cycle

Ordinarily once every twenty-eight days one ripened germ-cell or more is discharged from one or the other ovary. The egg is taken up by a finger-like process at the outer end of the Fallopian tube on the same side. Down the canal of this tube it travels until it reaches the cavity of the uterus. If there it meets with a male germ, or spermatozoön, it will become attached to the inner wall of the uterus, where it will continue to grow and develop into a fetus. If it meets no sper-

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matozoön it dies and makes its escape with the uterine secretions.

The ova are ripened in little cells in the surface of the ovum, called Graafian follicles. A follicle swells and at the time of ripening ruptures and discharges an ovum. During this period, the lining membrane of the uterus becomes thickened and congested, forming what is known as the menstrual mucosa. This has formed in anticipation of receiving a fertilized ovum, but if the discharged ovum is not fertilized it dies and passes from the uterus or womb. After the discharge of a dead ovum the muscular fibres of the womb contract and squeeze down on this menstrual mucosa, breaking it up and causing a discharge of blood, mucus and debris. This constitutes what is known as menstruation. There is a considerable amount of mucus included in the discharge, also particles of the lining membrane of the uterus. The amount, duration and frequency of the flow depend upon health conditions, habits of living, and the condition of the uterus itself.

When conception takes place menstruation ceases, and does not make its reappearance until some time after childbirth. This recurrence of menstruation chiefly depends upon whether the mother nurses her baby or not. Nursing mothers do not usually menstruate for several months.

The First Symptom of Pregnancy

The cessation of menstruation is the usual first sign of pregnancy. Occasionally there is a minor discharge

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a time or two after cessation and rarely it continues throughout pregnancy—indicating usually a condition of general ill health or uterine disease.

It is doubtful, in the instance of a discharge of this sort, if this is a genuine menstruation. It more likely arises from different causes than those giving rise to normal menstruation.

There are many women who have such irregularity of menstruation that they may be two or three months advanced in pregnancy before they suspect the condition. There are numerous diseases and abnormal conditions which often cause amenorrhea, or lack of menstruation.

Among these causes are anemia, chlorosis (green sickness), tuberculosis and diabetes; also catarrh of the cervix or neck of the uterus, goitre, fibroid tumor, hysteria, chronic Bright's disease, tuberculosis of the kidneys, obesity, ovarian cysts, pelvic adhesions and other conditions.

A markedly deficient diet, particularly one failing to supply enough vitamins, may cause cessation of menstruation. A woman needs vitamins in considerable amounts for thyroid and ovarian functioning, and if these are deficient the entire glandular and chemical balance of the body will be disturbed. If the diet in general is too limited, Nature conserves the woman's energy in many instances by withholding the blood and dispensing with menstruation while diet deficiency continues.

Diet is not the sole factor in controlling menstrua-

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tion, but it is important. A woman has reported herself able to arrest her monthly period at will, simply by going on a diet of uncooked fruits and nuts with occasional other uncooked foods. Upon resumption of a conventional diet, the menstruation returned, and was arrested again upon her return to the uncooked diet.

Most women, however, are not able to produce this effect in so modifying the diet. However, it may be accepted as practically certain that such a natural diet will reduce, in some measure, the menstrual discharge.

Breast Changes In Pregnancy

A change in both subjective and objective feeling, and in the appearance of the breasts is an early indication of pregnancy. Before any change is noticeable upon observation, the woman often is concerned over a tingling, throbbing or prickling sensation or an uncomfortable feeling of fullness in the breasts. This sometimes is the first indication of pregnancy.

Often there is great tenderness in the breasts as the earliest symptom; the weight of clothing upon the breasts becomes well nigh unbearable. However, there may be this sensitiveness from other causes.

Within six or eight weeks after conception the nipples somewhat enlarge, become more erect, and darken in color. The areola of pigmented skin forming a circle around the nipples also darkens. The darker the complexion of the woman, the deeper the

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color of the nipples and pigmented circle around them.

Within this areolar circle develop a number of little shot-like elevations, due to the milk-glands becoming active. The breasts enlarge and become more firm and the veins under the skin become more pronounced after the second menstrual period has been missed. Shortly afterward, the nipples give forth a thin clear, white fluid upon being squeezed. This is colostrum, the forerunner of breast milk, which in the later months of pregnancy becomes cloudy and distinctly yellow.

These changes are not positive indications of pregnancy—but they especially point toward it in a woman who has never before been pregnant. Colostrum often has been found in the breasts of women who have recently nursed a baby.

Nausea And Vomiting

"Morning sickness," or nausea with or without vomiting, is experienced by from fifty to seventy-five per cent. of all pregnant women, at least in some degree. Sometimes this becomes extremely persistent and serious, even necessitating abortion in order to save the woman's life. It makes its appearance usually about the sixth week following conception and generally lasts for about six weeks, but not infrequently continues throughout pregnancy.

There are numerous causes of nausea and vomiting, thus making it impossible to diagnose pregnancy from

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these two symptoms alone. Furthermore, there are many women who never have these stomach symptoms, regardless of number and frequency of pregnancies. But when noticed with cessation of menstrual flow, changes in the breasts and nipples, with appearance of colostrum, morning sickness is an indication of pregnancy.

The Bladder In Pregnancy

An early symptom often observed in pregnancy is bladder irritability, manifested by frequent desire to urinate. This is particularly noticeable after a few months of pregnancy, and progresses in degree until the uterus is emptied at childbirth.

The enlarging of the uterus with its forward pressure naturally tends to limit the capacity of the bladder, thus necessitating its frequent emptying. But there are various toxemic and nervous conditions giving rise to the same symptom, hence it is not valuable as an indication of pregnancy.

The symptoms already mentioned are sometimes all present in the same woman without there being pregnancy. Frequently a physician will diagnose pregnancy under such conditions only to find that other causes have given rise to them.

"Quickening"

It has been said that the only true indication of pregnancy is the birth of the child. However, if there has been a gradually uniform enlarging of the lower

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Table of Pregnancy

Indicating probable date of termination

Commencement of last Menstruation	Date of Birth	Commencement of last Menstruation	Date of Birth
January 1	October 8	July 6	April 12
7	14	12	18
13	20	18	24
19	26	24	30
25	November 1	30	May 6
31	7	August 5	12
February 6	13	11	18
12	19	17	24
18	25	23	30
24	December 1	29	June 5
March 2	7	Septemb'r 4	11
8	13	10	17
14	19	16	23
20	25	22	29
26	31	28	July 5
April 1	January 6	October 4	11
7	12	10	17
13	18	16	23
19	24	22	29
25	30	28	August 4
May 1	February 5	November 3	10
7	11	9	16
13	17	15	22
19	23	21	28
25	March 1	27	Septemb'r 3
31	7	December 3	9
June 6	13	9	15
12	19	15	21
18	25	21	27
24	31	27	October 3
30	April 6		

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abdomen, with cessation of menstruation, with or without the morning sickness, pregnancy can be fairly possibly indicated if at the eighteenth or twentieth week movements of the child in the uterus are detected by the mother. These movements are called "quickening," and resemble a light tapping becoming progressively more pronounced.

Termination of Pregnancy

The usual duration of pregnancy is two hundred and seventy-three days. However, two hundred and eighty days is the time figured, as a rule, from the first day of the last menstruation period. This is nine calendar months, or ten lunar months, of four weeks each. On the preceding page appears a table which will aid the prospective mother in arriving at the probable date of her expected delivery. These dates must be considered as only approximate. Confinement may take place a few days before or after any termination date given.

Another way to figure this date is to count eighty-five days back from the beginning of the last menstruation period, and add a year. Perhaps the simplest way is to count back three months and add seven days —to represent the difference between three months and eighty-five days. For example, if the last period began on October 30, count back three months to July 30, add seven days, which would give August 6 as the date of expected confinement. If the month of February is not included in the pregnant months five days are added instead of seven.

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CHAPTER VII

Diet for Safe Pregnancy and Easy Childbirth

THE hygiene of pregnancy, as does the hygiene of all other periods of life, consists of many factors, and it is difficult to determine what factor is of greatest importance. My opinion, however, is that diet and exercise are the most important two factors, especially for the final crisis of pregnancy—the delivery of the child. Not only is diet of importance for freedom from many of the inconveniences and disorders of pregnancy, but for ease and safety during confinement and for normal recuperation and, not the least, for the vitality and health of the child.

Diet never has been given the important place that it has deserved in the treatment of disease. Even more to be regretted is the fact that diet has not been employed as our most potent factor in the *prevention* of disease. There are many abnormal conditions that cannot be called disease. They are temporary or permanent dysfunctions that as yet have been assigned no names designating them as diseases. My contention is that there is but one chief disease, and that is toxemia. Faulty diet is the controlling factor of toxemia. Hence, practically every abnormal function is in reality a manifestation of the chief disease, and has been brought about mainly by dietetic indiscretions.

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There is no denying that every tissue in the body is made up of elements taken into the body in food, in combination with the air we breathe and the water we drink, all vitalized in some mysterious way by the rays of the sun—both before entering the body and after. There is no denying that an insufficient amount of food will result in emaciation, inanition, anemia, reduction of strength and vitality. Yet, strange as it seems, there are countless people, including many physicians, who ignore, even deride the claims that an excess of food or wrong foods can have any bearing upon the health.

Farmers and stock breeders often will stop at no expense to learn what foods are best for the health and reproductive functions of their stock, and to provide those foods. But any one of these same breeders will feed himself and his wife—a prospective mother—whatever foods please the fancy or are most economical in initial cost, without a thought of the health of the mother and *her* offspring.

The expectant mother's body is subject to identically the same physiological requirements as is that of the unpregnant woman, in spite of the fact that her physiology is somewhat altered—though the more normal the woman the less will this alteration be. But because there is some speeding up of processes there is greater likelihood of a greater increase in weight in the same length of time during pregnancy than at other times. One reason for the extra rapid gain in most cases, however, is a very common practice of

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"eating for two." If a woman were eating properly and for her best health before becoming pregnant, she would not need to alter in the least her dietetic habits, including quantity of food consumed, for pregnancy.

The Need For Mineral Elements

An old saying is, in effect, that for every child a woman bears she loses a tooth. In a great many instances practically all of the mother's teeth have softened and decayed and perhaps been lost entirely through repeated pregnancies. The reason for this was not pregnancy in itself, but deficient diet for the woman. Nature aims to produce perfect offspring, being concerned more with the child than with the mother; and if the mother's diet does not provide all the elements required (lime, silica, phosphates and other bone- and tooth-forming material) her own body will give up some of its elements for the good of the baby. Thus her teeth and bones may lose their hardening elements, with the teeth decaying and the bones becoming soft and pliable to such an extent that they may become greatly deformed from her body weight.

The conventional diet of white bread, refined cereals in general, pastries, over-cooked and drained vegetables, white sugar and its products, tea and coffee, is extremely deficient in body-building elements. When such a diet is used by the pregnant woman she will be certain to be sacrificed for the good of her child. This sacrifice is wholly unnecessary.

The child developing within the woman's uterus

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may be considered a separate life process, so far as its response to the mother's condition is concerned. It certainly is not a part of the mother, such as an additional organ. Although it is an independent growth, we know that it develops rapidly or slowly according as the woman's body is overweight or underweight and according to the degree of toxemia. The developing child responds to the mother's condition of nutrition and toxemia in much the same way.

In the "feeding" of the child and the mother, there is a special arrangement for the child receiving its nutrition so that the circulation for it and for the mother do not directly mingle. By this arrangement the mother's nutrition is filtered before it reaches the child.

However, when the mother's diet is excessive and of such a nature as to produce a general toxemia within her blood and tissues, it is impossible for the filtering process to completely refine the child's food supply and provide it only with the elements it requires and no more. Likewise, if the mother's diet is deficient in some of the essential elements, the child's circulation cannot make up the deficiency. It is in such instances that the mother's tissues give up some of the elements that have been stored therein or builded into her structures, thus weakening the mother's health and vitality. With a proper diet there should be no necessity for giving any medical or non-food supply of iron, lime, manganese, phosphorus, potash or any of the other mineral elements that go to

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build up bones, teeth, nerve or brain cells, sinews, muscles, or blood in the infant.

Vital Food Elements Necessary

If gain in weight is not desirable by the expectant mother, the best diet during pregnancy is one well fortified with the elements required for vital functioning of the mother and growing child, with just enough weight-producing elements to maintain the mother's weight and provide for the child's growth. If she is temporarily underweight, then the same diet will be required plus the addition of weight-producing elements until she approaches *her* normal weight—or perhaps a few pounds above or below "standard" normal. If she is above normal, then the same diet should be followed, but with a reduction of the elements that promote weight, though this reduction should take place either before pregnancy or not until the last half of pregnancy. Thus in any instance the object is to provide vital elements—the numerous mineral elements required and the vitamins, regardless of the mother's weight.

Iron may be secured from spinach, lettuce or other leafy foods and from many other vegetables, fruits and whole-grain products. Egg-yolks and liver are the best animal sources of iron. Calcium, so necessary for the growth of the child's bones, is best provided by milk. This need will be met if the mother has a quart of milk a day. Where a less fattening diet is desired, skim milk or buttermilk is as good a source

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of calcium as is whole milk. Phosphorus, potassium and all the other minerals needed by the mother and child will be supplied in ample amounts from any diet of natural foods taken in adequate amounts.

Overweight Avoidable

If a woman's tendency is toward slightly surplus overweight, this may be maintained during the first half of pregnancy. It should then be gradually reduced by reducing the fat-maintaining elements until the weight is brought to normal, plus allowance of sufficient increase for the pregnant state. One value of this procedure is the avoidance of toxemia associated with excess nutrition and consequent abnormal functioning of some or all of the chief vital organs.

Another advantage in keeping down weight is that the abdomen is kept so reduced in size as to be less conspicuous. This is a very desirable result for most women, especially sensitive women, for they are enabled to escape the gaze of others when they are on the street for part of their necessary open-air activity.

Another advantage is that the women's abdomen is less marred by the stretching—and to some extent weakening—of the under-layer of the skin. The abdomen that is not too greatly stretched returns to its normal state more quickly after childbirth.

Still another value is that the reduction of the diet at this time reduces the size of the internal organs, because they also lose some of their fat. This relieves much of the distress due to the crowding of the

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organs by themselves and the growing child. In fact, practically all of this distress may be made to disappear by controlling the diet even more closely during the latter half of pregnancy.

Always the nearer one is to normal weight the better the health will be. This is no less true during the state of pregnancy than at any other time in life—probably more so since both mother and child are affected by the mother's condition.

Controlling the Child's Size

Without a doubt heredity influences the child's size at birth, and no doubt other factors are involved also. But I believe that the condition of nutrition of the mother, and her diet, have much to do with the child's size. Nature has provided that the child will take up all the elements that it requires for complete development, if they are in the mother's blood; or if she has not provided them in her own diet it takes what it can from the mother's own tissues.

It seems to me that if the mother has a super-abundance of food elements in her body the child will take up, in many instances, enough to build a larger body than normal and thus prevent easy delivery. It seems reasonable to expect this, because the baby grows from the food supplied by the mother's blood. Besides, there is a uniform warmth within the uterus which greatly encourages maximum development.

Size is not a matter of fault with the germ-plasm, but of nutrition supplied, especially when there is the

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hereditary influence of greater size than normal back of it.

Being large is not in itself a disadvantage to the child directly. The main disadvantage lies in the effect upon the mother and the child at delivery, through the child being too large for the birth canal of the mother or too large to make a reasonably quick and safe exit. Without a doubt the nutrition of the mother can govern the size of the child to an appreciable extent.

Starvation of Mother Not Necessary

Formerly it was quite generally believed that the fetal skeleton would be softened, and birth therefore made easier, if the amount of bone-making materials in the food were cut to a minimum. But if this is attempted the fetus will rob the mother's teeth and bones for the supply necessary for its own needs—and, besides, the baby may be a rickety cripple!

I am not advocating starvation of the mother with the aim of producing a three- or four-pound child. If this course were pursued it is more than likely that the health and vitality of the mother would be irreparably harmed and the vitality of the child would be greatly lowered, possibly to the extent where it would fail to survive the first year. Also, the chances are that the child would be five or six pounds in weight in any event.

The most favorable weight for mother and child, it seems to me, is under eight pounds rather than

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over eight pounds, and a weight of five or six pounds is still better and not at all inimical to full vitality. Especially for the first childbirth the woman should attempt to keep the child's weight under seven pounds, and particularly if she is a small woman, of small ancestry or over thirty years of age, and her husband is of somewhat larger ancestry. Later childbirths usually are easier, though the experience of many women is that following deliveries will be as difficult as the first.

Vitamins and Mineral Elements

Science has fully demonstrated the presence of vitamins in foods and the need for these in our diet. The pregnant woman requires these in abundance if her own health and vitality and those of her developing child are to be normal. For some time we have known the presence of mineral elements in foods and the requirements of the body for these. We have known for a long time the effects of the three main classes of foods—protein, carbohydrates (starches and sugars) and fats—upon the body, and what foods contain these classes. The need of providing a diet to meet the demands of any individual woman who is in the main normal is not a particularly difficult problem. But, at the same time, it is the most important problem that concerns the mother.

There is no class of natural foods that should be avoided in the diet of the pregnant woman. Proteins are necessary for growth of the child in the uterus.

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Fats, sugars and starches are necessary for the energy and heat they supply, and for the normal amount of fat they maintain on the mother's body and provide for the child's body. However, the baby should not be *fat* when born, but reasonably covered with this tissue to give it a good start and to give a greater protection during actual delivery. It can have as much fat as it needs, and as much in proportion to its weight, when weighing five or six pounds as when weighing twice this amount. Every mineral element the body ever requires should be provided during pregnancy, for the sake of both mother and child; and the same is true of all the vitamins. Nothing of real foods—of natural vital foods—can safely be eliminated from the mother's diet or reduced below needs for the highest possible degree of health and vitality.

Protein Foods

Protein foods are the builders. Those necessary for the expectant mother are milk, eggs, cheese and whole grain products. All of the others—meats, fish, fowl, nuts and legumes—may be avoided. The latter two, however, are excellent foods and may be occasionally taken by the pregnant woman, provided they are thoroughly masticated and not used in excess, and if the nuts are used as the protein portion of the meal and not as tid-bits.

Meats, fish and fowl are comparatively poor substitutes for the other proteins; but they may be used safely, if not too frequently or in too large amounts,

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and if there is an abundance of the mineral- and vitamin-bearing foods taken with them. But I am certain the health and vitality of no one demands the flesh proteins—and certainly not the pregnant woman, for herself or the developing child.

Carbohydrates

Starch and sugar foods comprise the cereals, including rice, tuberous vegetables, especially the potato and sweet potato, macaroni, spaghetti, vermicelli, noodles, white flour products of all kinds, bananas, chestnuts; sugars, honey, dates, figs and raisins.

The chief foods among these that should be used by the pregnant woman are the cereals (when these are whole grain, including unpolished rice), bananas, honey, dates, figs and raisins. The potato may be used in moderate amounts, particularly if baked and the skin used. The sweet potato may be used, also, in moderation. But nearly all of the other foods in the carbohydrate class are devitaminized, demineralized and devitalized.

Fats

Fat foods are cream, butter, egg yolks, some cheeses, Brazil nuts, cashew nuts, coconuts, filberts, hickory nuts, walnuts, ripe olives, olive oil, nut oil, salad oil and margarine. If the woman is not above normal in weight the fatty dairy products may be used, also the nuts (with provisions mentioned under proteins) and the oils in small amounts. In many

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cases fat foods are laxative in nature, and the pregnant woman requires more than the usual amount of laxative foods.

If the woman is overweight or needs to guard carefully against putting on excess weight, these foods should be reduced to a minimum or omitted entirely, and mineral oil substituted in salad dressings, if such dressings are desired. Mineral oil is not fattening, as it does not pass from the digestive tract into the body; but it is a serviceable and harmless lubricant and laxative. Bacon is a fat food, but should be avoided for the most part by everyone, including the pregnant woman. The same is true regarding sausage.

Protective Foods

Foods rich in mineral elements and vitamins are the green leafy vegetables and fresh fruits especially, also the whole grain cereals, milk, egg yolks, and cod liver oil. Among the best vegetables are cabbage, lettuce, spinach, cauliflower, young peas, onions and celery. All of these are to be taken preferably raw, or for the most part raw.

Among the best fruits are oranges, grapefruit, lemons, limes, grapes, apples, tomatoes, raisins and bananas. Since bananas are rich in starch they may be used freely, if thoroughly ripe, by the woman requiring additional weight and should be used sparingly by the woman tending to overweight.

Among the animal foods, in addition to dairy products and eggs, that have a fair percentage of vitamins,

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are liver, brains, sweetbreads, and kidneys of animals, also cod liver oil, codfish-roe, salmon and herring and the roe of various fish. Since the highly important vitamins in these foods are also present in lesser percentage in other foods such special food products are not urgent necessities, although this does not apply to eggs and the dairy products. Cod liver oil also may be used, when required, without regard to what other vitamin-rich foods are taken.

As I have stated earlier, each woman will need to have her diet modified or adjusted to fit her individual requirements. This adjustment largely is a matter of common sense, which should be aided materially by an understanding of food classifications, food effects and body requirements of mother and developing child.

Pregnancy Diet When Weight Is Normal

When the woman is so fortunate as to have a body that easily remains at a weight approximating the normal for her height, it should be a simple matter to arrange her diet so as to keep her weight at a satisfactory level. At the same time she can insure tissue-stability and growth and vitality to the child that is developing by proper diet.

In such a case the main consideration will be avoidance of foods that tend to delay digestion, cause fermentation, or to undergo putrefaction or cause constipation, also to avoid large varieties at individual meals. Breakfast may consist of some whole grain

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cereal with moderately rich milk, some fruit and a glass of milk. An orange or half a grapefruit may be the fruit, in which case it would be better to take it fifteen to thirty minutes before the cereal and milk. It is an excellent plan for all pregnant women (and everyone else, for that matter) to take one of the citrus fruits, unsweetened, shortly after arising—*before* breakfast.

Lunch may be composed of a generous raw vegetable salad; or a vegetable and cheese *or* nut *or* sweet fruit sandwich on whole wheat bread; any fresh fruit desired; and preferably milk or any preferred form of sour milk. Cottage (pot) cheese is the most desirable cheese, plain or mixed with one-quarter quantity cream cheese.

The evening meal may be one or two cooked green vegetables, or one green and one tuberous vegetable, a raw salad, cheese or eggs, and whole wheat toast, with or without a fruit dessert. Instead of the cheese or eggs a gelatin dessert, combined with fruit may be taken if desired. Sweet milk, or some form of sour milk, may be taken in any desired quantity instead of any other protein. If particularly preferred, occasionally broiled or baked fish or chicken or other meat may be used as the protein, but the better proteins are those I have first mentioned.

Diet for the Underweight Expectant Mother

If the woman is underweight and desires to gain, yet without tendency of increasing toxemia and like-

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lihood of disturbing the normal growth progress of the child, her diet may be increased somewhat over that given above. With her breakfast cereal may be taken some sweet fruit, also a slice or two of whole wheat toast with butter, and her glass of milk or the milk used for her cereal, may contain slightly more cream. Care must be taken, of course, not to take excessive amounts of fats or sugary fruits.

The lunch in this case may include somewhat more milk (in whatever form this is preferred) or more cheese or nuts; or sweet fruit may be added to the vegetable salad. Mayonnaise salad dressing may be used also, if this is desired, and if it does not disturb the digestion by its fat content.

The evening meal may include a fair-sized baked potato, or one or two eggs may form a part of it, or a baked potato may be taken with one or two egg yolks without the whites. A milk-vegetable soup or a rich vegetable purée may be taken instead, if desired. A fruit salad consisting of some sweet fresh fruit may be included, and there may be a liberal allowance of butter, for the potato and the toast. A cheese omelet may be taken occasionally, in which case there need be no other foods except the salad or one cooked green vegetable, and a fruit dessert.

Diet for Overweight in Pregnancy

If the pregnant woman is overweight, it will do no harm to maintain this excess for the first four or five

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months of pregnancy, provided it is not more than twenty-five pounds above recognized normal—or fifteen pounds if the woman is of such small stature as five feet or less in height. If the weight is above this, care should be taken to prevent its increase and preferably to bring about a gradual reduction after the first two months. It is usually found, however, that it is better to reduce the weight to approach normal before pregnancy, in order to prevent the morning sickness of early pregnancy or make this condition less disturbing.

In the ordinary slightly overweight case, however, the woman may retain her excess for the first half of pregnancy without detriment to herself or her child; and she may then reduce weight gradually or at least hold it level, with advantage to both. As explained earlier in this chapter, to reduce weight after the child has developed to the size where her abdomen begins to show conspicuous enlargement may relieve the mother of the embarrassment of further increase in girth.

Indeed, it even may be possible, by decreasing abdominal fat, to reduce protuberance, already present, with improved appearance and with reduction of pressure symptoms.

The fattening foods have been mentioned—the fats, starches and sugars. These, especially fats, should be reduced when it is desired to lower the weight or prevent weight increase. The amount of these foods to be taken may be governed by keeping careful watch

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of the abdominal girth, for this is the point where the reduction or increase of weight will be most noticeable. Indeed, this girth is a good barometer of nutrition and food requirements of the pregnant woman.

Milk An Important Food in Pregnancy

Milk should constitute a part of the diet of every pregnant woman, and so also should butter fat, or cream. But a good many women do not like whole or skimmed fresh milk, and it becomes necessary to provide a substitute. Buttermilk, Bulgarian, acidophilus or other cultured milk, or plain curded sour milk whipped to a creamy consistency may be substituted in such cases.

Powdered whole or skimmed milk, in the form of malted milk or otherwise, is an excellent substitute for fresh milk, because it is possible to secure the same amount of milk protein and mineral salts from a much less amount of a powdered milk than of the fresh milk.

More concentrated preparations may be made also, thus making it unnecessary for the woman to take such large quantities of fluid milk. However, if the woman enjoys fresh milk I believe it would be better for her to secure at least some of her milk in this form, whether whole or skimmed, according to tendency toward excess weight.

Four ounces of powdered skim milk will provide the same amount of protein and mineral salts as will be

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obtained in five ordinary glasses of fluid fresh milk, and the elements are readily available for bodily needs. This is a sufficient amount of protein to be derived from the milk source, the remainder of the proteins to be secured from other foods. Many foods not specifically designated as protein foods contain this element in some degree. When any single meal contains one of the recognized proteins there should be provided comparatively little protein from milk.

Various ways of preparing milk for use are available, allowing the woman to secure her milk protein and salts in such ways as to avoid monotony, if this is a factor that must be considered. Among these different preparations are vegetable-milk soups; custards; junket, prepared with junket powder; cocoa, though little of this should be used; eggs poached or scrambled in milk or used raw, whipped in milk as egg nog. If less cream is retained in the milk, the woman will be permitted to use somewhat more of the fat of the milk, in butter or cream or some of the fat-containing cheeses. Care should be observed, however, that the weight is not increased by these elements —or by an excess of starches or sugars. These latter also need curtailing greatly in quantity for the overweight woman.

Preventing an Over-Large Abdomen

There are many women who are needlessly embarrassed because of the prominence of the abdomen during the last few months of pregnancy. There is a

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very favorable tendency, however, for women to get away from this feeling. This permits them to spend more time out in the fresh air, either for the air and sunlight alone or for the added benefit of the daily walk. Formerly women would stay inside during the daytime and secure what inadequate walking they did after dark. This denial of an abundance of fresh air and sunlight is detrimental to the woman and her developing child, for at no time in life does the woman need as much air and sunlight and wholesome activity as during pregnancy.

It is possible for many women who are somewhat above normal in weight to prevent the abdominal conspicuousness in the latter months of pregnancy by greatly reducing the fattening elements in their diet in the manner I have outlined. This will have no harmful effect upon the mother or child, for the fattening foods do not serve any particularly beneficial purpose so far as the child is concerned; and the mother's excess flesh consists of fat that will serve both her and her baby's needs for this element.

The woman who is below normal in weight and the woman who is normal in weight cannot use the same procedure, however, to make themselves less conspicuous. For them it is important that they maintain or attempt to maintain normal weight, for their own vitality and the vitality of the forming child. But if they provide an abundance of wholesome proteins and of foods that supply the necessary mineral elements and vitamins, and avoid an excess of the foods that

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fatten, they may be able to prevent great enlargement of their abdomens. In all cases, of course, suitable activity is an important factor.

Consider the Child's Health

Every effort should be made to provide for the growth, health and vitality of the child, whether or not the woman is able to control her own disfigurement by noticeable enlargement. No woman who deserves the name of mother will purposely endanger her developing child for the sake of improvement in her own appearance, or of maintaining an attractive figure, if it endangers her child. While improvement is possible for the overweight woman with safety, so far as both she and the child are concerned, it is not safe to attempt it, as a direct aim, for the woman who has not excess of fat.

The pregnant woman should remember that whatever her diet, *there must be adequate elimination in proportion to food consumed.* She should remember also that her best foods are leafy vegetables, oranges, tomatoes and milk. If she has an abundance of these the growth and vitality of the child reasonably may be considered assured, and her own chemistry will not be abnormal to a great degree. Also she must bear in mind that when any condition or symptom develops that would call for the fast if she were not pregnant, the same treatment may be used when pregnant. Neither the child nor herself need to fear abstinence from food for a few days, or a very limited diet for

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several days. If the mother's strength and energy continue on her dietetic procedure she may rest assured she is not harming the child—probably greatly benefiting it.

Overcoming Nausea

The morning sickness of early pregnancy usually is due to or aggravated by an abnormal condition of the stomach, usually through too much food or too rich food or food taken without appetite. A diet at this time consisting mainly of fruits, particular the citrus fruits, usually will eliminate this symptom or greatly reduce it. A strict vegetable diet consisting of raw vegetables, and particularly of the tomato and its juice alone, or of oranges alone, grapefruit alone, or any other single fruit will relieve the symptom and will have nothing but a beneficial effect—provided, of course, it is not necessary to continue on the diet longer than several days.

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CHAPTER VIII

Exercises for Easy Childbirth

THERE is a great difference among women in regard to the amount and nature of physical exercise they secure, and without doubt this difference has considerable to do with the way they pass through pregnancy and labor. Many are indolent to an extreme degree, living in a disastrous luxury of physical ease if not one of finery and plenty. Apparently they live only to eat and sleep and enjoy amusements of various kinds, including sensual pleasures. They grow soft and flabby, whether they become thin or rotund; for the thin woman's muscles and tissues in general, as well as those of the fat woman, can be flabby. Usually, however, there is an excess weight of several or many pounds.

The Inactive Woman

In many cases of inactivity or insufficient activity the blood-stream is sluggish and loaded with poisons from excessive eating, wrong eating, constipation and defective functioning and elimination in general. The nerves are relaxed or tense, probably fluctuating between extremes of each condition—that is, highly unstable. The pelvic organs become crowded by gas in the intestines, an overloaded colon and prolapsed abdominal organs, hence are congested and displaced.

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Menstrual functions become altered in some manner and degree. The kidneys are irritated by the excessive and abnormal waste material that is sent to them for elimination. The heart-muscle becomes weak, the nerves controlling it incapable of proper functioning. The abdominal walls enlarge and become burdened with layers of fat, baggy and pendulous.

Such is a picture of many women who, unfortunately, do not occupy themselves with some physically beneficial work or exercise. They become soft and flabby and it is almost impossible for women in such a condition—or even with general toxemia without all the other conditions enumerated—to pass through a period of pregnancy with comfort, and a period of childbirth without danger of serious complications direct or immediately following delivery, and to bear children that are normal.

Lacerations are among the troubles such women suffer from labor. These are almost unavoidable because of the complete lack of tone in the structures forming the birth-canal. Tedious labor, with its harmful effects upon mother and child; hemorrhages; septic infection; failure of the uterus to return to normal pre-pregnant size; serious kidney disease, possibly eclampsia; much nausea and vomiting during pregnancy; also other disturbances of more or less serious nature—any of these may overtake the indolent, fat and toxemic woman in pregnancy and labor, many of them afterward recovering health very slowly and incompletely.

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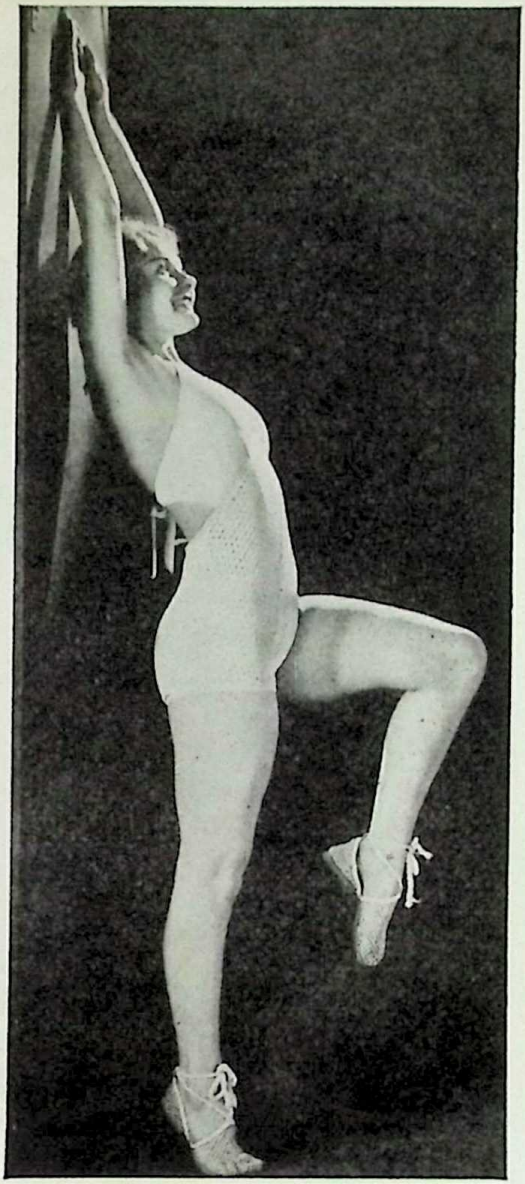
NOTE.—Exercises Nos. 5 to 15, appearing in this chapter, are adapted for use in the earlier part of pregnancy. For definite reasons, among these the risk of rupturing the bag of waters, movements that involve stretching or contraction of the muscles of the pelvic region should be avoided, when only a few months of the term remains.

Exercise No. 5. Standing with back about six inches from wall, the body is arched backward and the heels elevated, and the left knee is raised as high as possible. When it is lowered the heels are brought down, then the right knee is raised after rising on the toes again. Alternate raising right and left knees. Repeat several times.



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Then in such cases the effects upon the child are very detrimental. It may be large and weak, or small and puny, or subject to eczema and every other disease on the calendar, when its body endeavors to right itself.

The Over-Exercised Woman

Then there is the other extreme—the woman who is over-zealous in physical activity, entering various athletic and gymnastic activities, including sports. There is almost as much to say against this tendency as against the opposite, in its relation to motherhood, except that those who are guilty of this error are to be commended for at least *trying* to prepare themselves for childbearing.

Too much exercise, especially of a strenuous and one-sided nature, is inclined to over-tone the general tissues, but especially those of the pelvis. Many women indulge in fairly strenuous exercise with the specific purpose of strengthening these tissues for pregnancy and childbirth, and are chagrined and dismayed to find that the difficulty of a protracted and painful labor was not avoided, but perhaps actually made worse than they had feared.

The tissues of the birth canal must be elastic, capable of yielding greatly, and yet they must possess such tone that they prevent over-rapid expulsion of the child through the canal. On the other hand they must not prevent the propelling of the child forward and outward at the proper time. When they are taut,

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rigid and unyielding they cannot easily dilate, and the result will be much pain for an unnaturally long time, perhaps even rupture of tissues. The main cause of lacerations is either deficient tone with abrupt delivery, or rigidity of the birth canal tissues with

Exercise No. 6. Standing erect, hands on hips. Bend trunk forward, at the same time raising left leg backward; come to erect position with feet together. Repeat movement, moving right leg backward in same manner. Carry on with each leg alternating in this manner up to six times.

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slow, tedious delivery, the latter being even more liable than the former to result in such mishaps.

Calisthenic or gymnastic or setting-up exercises (the terms here being synonymous) or some other forms of activity, neither too little nor too much, are necessary for women in pregnancy and those contemplating matrimony, if their health is to be preserved, if they are to pass easily and safely through labor and have quick recuperation, also if they are to have a normally healthy child.

Athletics and most sports, especially competitive sports, are all right for the general health, but they are by no means admirable for the purpose in question—of assisting in pregnancy and labor. While some of them may help to bring about strength of all muscles connected with pregnancy and labor, which is what is necessary, almost invariably they develop some muscles at the expense of others.

Many women who have so over-strengthened or unequally strengthened their muscles and who feel perfectly normal during the first months of pregnancy continue their strenuous (and probably one-sided) activities with the desire of maintaining their strength up to as near labor as possible. What should be done, under such conditions of strength, is to drop such sports and gymnastics and concentrate upon those simple movements which will have the effect of increasing suppleness and elasticity of the pelvic muscles and other tissues.

And certainly if a woman never has indulged in

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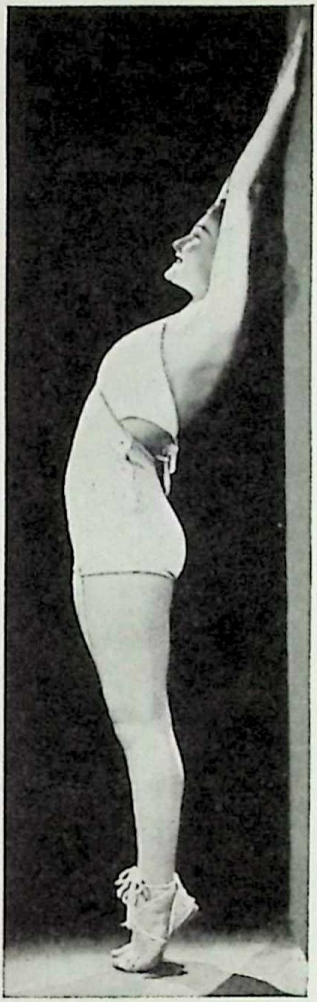
these more severe forms of activity she should not take them up near contemplated pregnancy nor after this condition has been established, with the aim of making childbirth easy, though the strenuously active woman may continue her activity for the first four months of pregnancy. After this time there should be a gradual tapering off until only light activity is continued.

Another effect of strenuous exercise is that of tightening the bony pelvis by developing undue strength of muscles and connective tissues uniting the various bony parts of the pelvis. Since it is necessary that the bony pelvis "give" somewhat during labor, in order that the pressure will be less upon soft structures and that labor may be facilitated, a tight and non-yielding pelvis may be a serious condition. Such simple exercises as I shall here describe and illustrate have for one of



Exercise No. 7. Raise and stretch arms upward to touch wall. Repeat up to six times.

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their effects the production of a greater degree of yielding of the supporting structures of the pelvis.

Suitable Types of Exercise

The third class of women includes those who secure a wholesome degree of exercise, neither too little nor too much—avoiding one or the other extreme. Farmwomen, housewives who really do their own housework, and housemaids; members of cross-country hiking clubs who do not indulge in a great amount of other exercise, tennis players who never get beyond the "play stage"—swimmers who do no great amount of diving or distance or speed swimming, but merely swim for the joy of it; and those who skate for the pleasure of it—such women, other things being equal, will have a far safer, less disturbing pregnancy and easier delivery than almost any other woman.

Some one or more of these activities are valuable additions to any system of gymnastic exercises. It is a good plan to indulge in them regularly, but not necessarily, nor perhaps advisedly, daily. When such special exercises as those included in this book are done daily, then any of these favorite sports may be taken perhaps three times a week, either the same each time or different ones; in fact, although it is not necessary it is a good plan to vary them.

Perhaps the best in the group of sports is swimming, especially if the woman has been a swimmer before pregnancy, in which case this sport need not be discontinued except for the last third of pregnancy.

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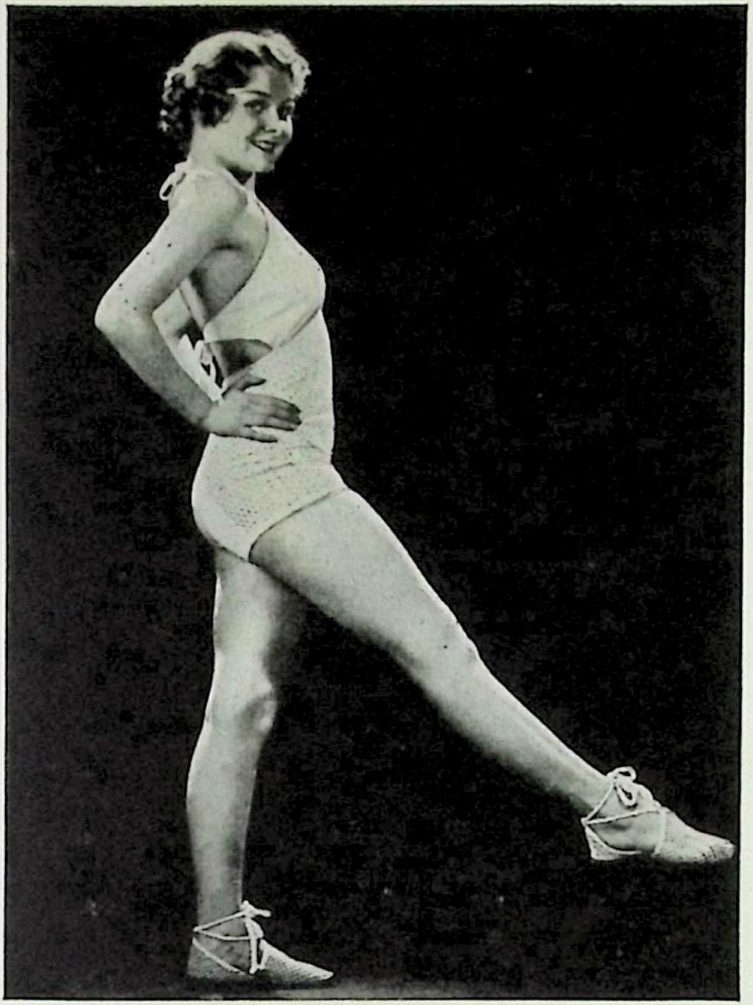

Exercise No. 8. Stand erect with hands on the hips. Raise the left leg forward, then form a complete circle with foot, keeping both knees straight. Balance on the left leg while performing the circle with the right leg. Repeat, alternating left and right, from three to six times with each leg and gradually increase size of the circle and number of movements.

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If she has not been a swimmer before, she may undertake swimming during the first third of pregnancy if she is careful to avoid over-tiring her body and if she uses mainly the breast and back strokes or the crawl stroke—not the side stroke, and does no diving from above the water. In any case there should be only a few minutes of swimming each time, and the water should not be cold, preferably at a temperature of about seventy degrees, not much lower. Surf bathing, when cold water pounds against the body and when there is called into play a considerable physical effort to maintain balance should be avoided by most women.

If a woman had not learned skating before becoming pregnant it would not be advisable for her to attempt to learn then, for the beginner almost usually undergoes some more or less harsh falls, which might prove injurious to the pregnant woman or to the child. Those who are "at home on the ice" may continue moderate skating during the first two thirds of pregnancy, but ice hockey should not be played.

Rowing, where two oars are used, is an excellent form of exercise for the pregnant woman, as it exercises most of the muscles of the body and can be made as moderate as the woman's condition demands. There is practically no time during pregnancy when this exercise may not be enjoyed with benefit, provided it is indulged in moderately. During early pregnancy it may be enjoyed daily if desired, but it should be gradually reduced in frequency after the fourth or fifth

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Exercise No. 9. This is the same exercise as the preceding movement except that the arms are raised with fingers touching back of the neck. Keep the body as erect as possible, make the circles with the legs alternately, gradually larger, make the movement slowly, breathe regularly and deeply.

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month, until toward the end of pregnancy once or twice a week a short row is taken.

Importance and Value of Walking

The importance and value of walking are so great that I have said at times that no human being could be in perfect physical condition who did not spend at least one or two hours in walking in every twenty-four hours—this in addition to other exercises, either of a special or recreative nature.

Unfortunately, a great many women remain indoors during pregnancy, owing to embarrassment due to their girth. There is no greater mistake, for outdoor life is a necessity, not only for general health reasons, but as a means of avoiding many of the unpleasant symptoms of pregnancy. No pregnant woman should be ashamed of being seen outdoors. Remember that motherhood is something to be proud of, and that pregnancy is a condition to be honored. Remember also your duty not only to yourself, but to the new life for which you are responsible. Hence spend as much time out of doors as you can, in walking, in motoring, and in sitting outdoors on porch or lawn whenever possible; also in pottering around in flower of vegetable garden or on lawn if possible.

In walking it is important that one step out at a brisk pace whenever possible, rather than dawdle along. The more brisk the walk the greater the stimulating effect upon the circulation and the greater the strengthening and invigorating effects generally. Endeavor

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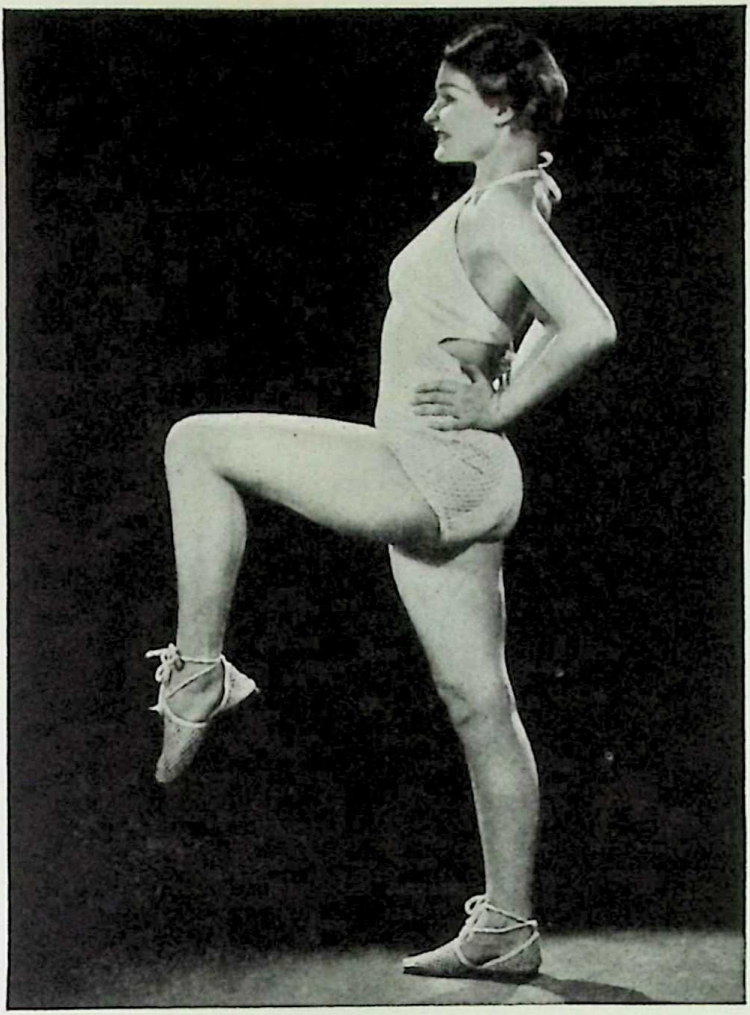

Exercise No. 10. Stand erect, heels together, hands on hips. Raise left leg and keep outstretched while bending the knee, straighten the knee with leg outstretched, then lower the leg. Keep right leg straight in this movement. Then raise, flex, straighten and lower the right leg. Repeat with each leg alternating, three times, later increase to six times.

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also to maintain a proper posture of the body, with trunk and head erect, abdomen in, chest out. The body should be erect at a forward angle. Every step should furnish a progressive propelling power, and should appear to save one from falling forward. In this position one can walk without tiring, for considerable distances.

Value of Housework as Exercise

Many women consider housework as drudgery, performing it listlessly and only because necessity demands, and inwardly rebelling at the necessity. There is a considerable degree of monotony about it, it is true; but this is one of the very best all-round forms of exercise for the preparation for pregnancy—and during pregnancy, as well, in preparation for childbirth. All muscles of the body are brought into activity in a moderate way, and there are the desired stoopings and mild stretchings that are so beneficial for the abdomen and pelvis and pelvic structures. Sweeping, dusting, mopping, bed-making, washing windows and clothes, moving furniture that is not heavy, making bread and other duties; and, in the country, the various duties connected with gardening, chicken raising and caring for the milk and butter, and similar tasks, tend to keep the body in a favorable state of flexibility and her tissues elastic. If housewives would look upon housework in this light, and at the same time eat properly and take care of the health in every other regard, they could easily endure

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Exercise No. 11. Standing erect, feet together, fingers touching at the back of the neck. Perform the same exercise given in exercise 10. With the arms in the raised position the exercise is a little more effective than is exercise 10.

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both pregnancy and labor better than most other women.

Many women desire to know if it is proper for them to drive a car at this time. In driving many cars there is sometimes a cramped position, frequently considerable vibration, and also a state of more or less nervous tension. Genuine exercise is far superior to automobile driving, and even riding in a car has no special advantage except that it gets one out in the fresh air. This may be an admirable means of insuring an abundance of fresh air in the late months of pregnancy, but even then there should be active exercise, if not more than walking.

Specific Effects of Exercise

Let us consider some of the more specific effects of exercise, besides developing or maintaining elasticity and suppleness:

Nausea and vomiting of pregnancy sometimes are the result of an irritable uterus and irritable nerves of the pelvis and abdomen. Exercise tends to improve the general circulation and restore equilibrium to the nervous system, thus helping to prevent or to overcome these unpleasant and disturbing symptoms. If exercise has not been taken before these symptoms develop, then it must be taken carefully.

But by beginning with two or three of the first exercises given in these pages and performing these gently at first, then adding another movement every two or three days and taking the exercises with very gradually

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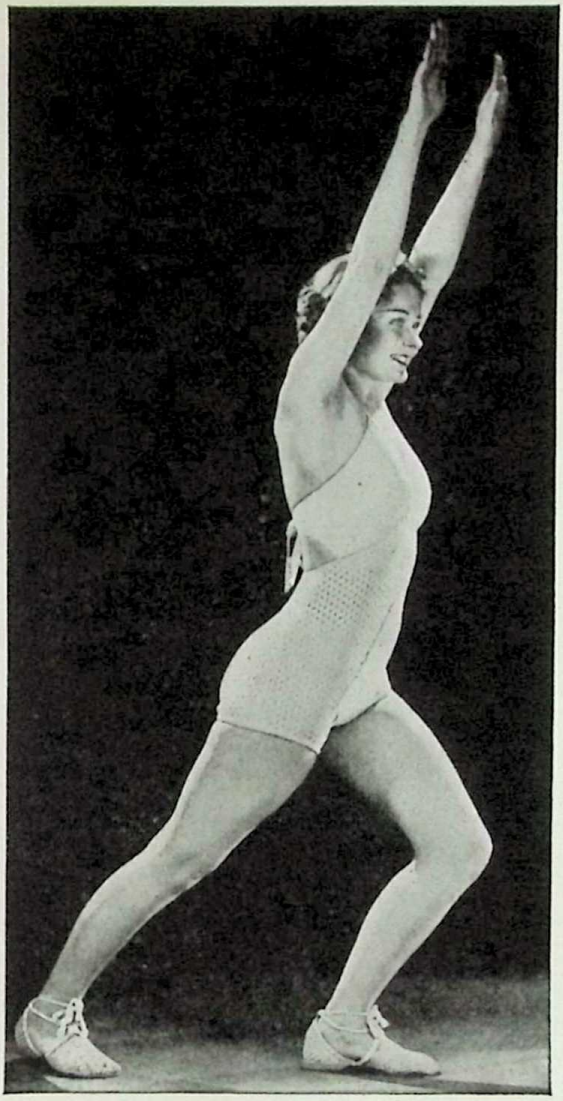
Exercise No. 12. In erect position, hands at sides, step well forward with the left foot, bending the left knee and bring the arms upward. Then bend downward until the fingers touch the floor, while exhaling. Resume position shown while inhaling, then bring feet together and come to erect position. Repeat the exercise with right foot forward, left foot in place and left leg remaining straight. Alternate and repeat three to six times.



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increasing vigor, the symptoms may be gradually reduced or made to disappear within a few weeks. Of course, no one measure should be employed to the exclusion of all others for any abnormal condition, and in this case the diet, elimination and other possible causes or aggravations should be looked after.

One of the chief benefits of proper exercise (before pregnancy) is the development of such strength of the intra-pelvic structures that there will be no displacement of the uterus during or following pregnancy. Many times prolapsus or other displacement of the uterus does not exist until after childbirth, and then only because there had not been developed a preventing degree of strength of the uterine supports.

Effects of Exercise on Miscarriage

By proper exercise all of the pelvic structures are strengthened, and the circulation throughout the pelvis is maintained or restored to normal or practically so. These have a material effect upon the prevention of accidental abortion and miscarriage, also the severe hemorrhages that frequently develop at or shortly after labor.

Of course, if miscarriage or abortion is threatened or imminent, then complete rest is urgent, and medical supervision is important. But this is quite different from avoiding or overcoming the preventable causes of either of these. This building-up is possible only during some time prior to pregnancy, or at least some months before the likelihood of the trouble. Over-

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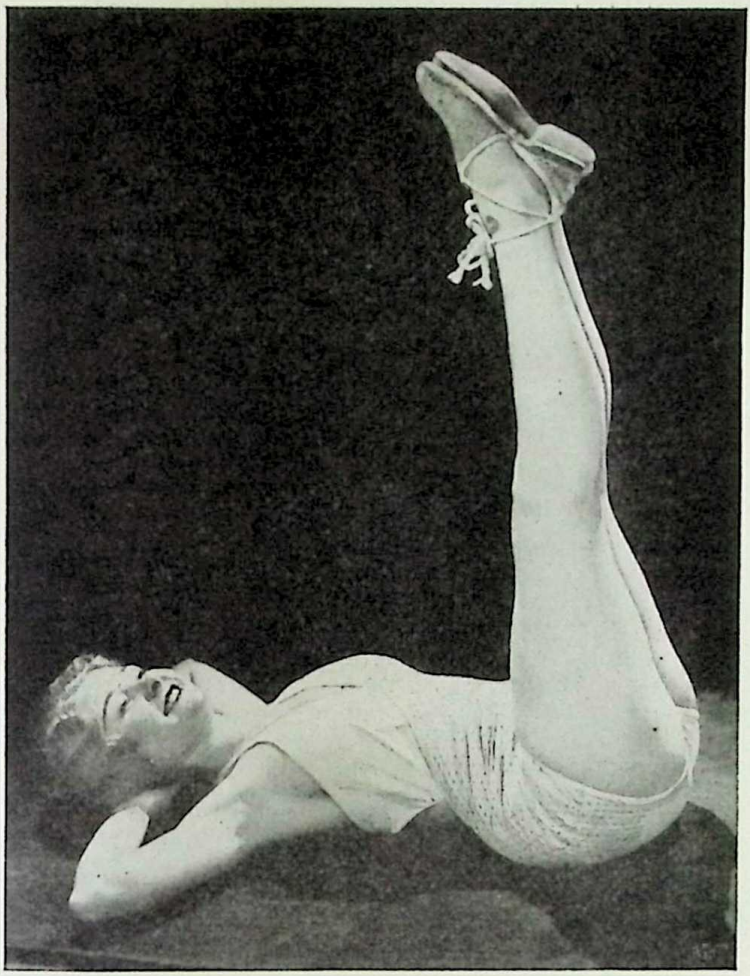

Exercise No. 13. Lie on back on the floor, arms at sides or back of neck. Raise the legs to the vertical, after first bending the knees very slightly at the start and then straightening the knees again after the feet are a few inches from the floor. Lower the legs slowly, and repeat from once to five times.

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strain at any time may cause a condition leading to one of these mishaps, and especially it is likely to have this effect during pregnancy. Therefore, if a woman has been unaccustomed to exercise she must begin during pregnancy very gently, and very gradually increase as her muscles become used to greater activity, also as her circulation, nerves, heart and lungs respond to it.

The improvement secured by exercise in general health, the increasing of circulation and prevention of much of the toxemia that otherwise would develop, do a great deal toward the avoidance of septic infection. The improvement in the pelvic circulation helps to prevent every condition that makes possible a pelvic infection, from which all septic infection starts in relation to childbirth.

Preferred Times for Exercise

Ordinarily I would say that the best time for one's exercise period is upon arising in the morning. One feels rested then, if in good health, and has the energy to put into the movements. As one should exercise with the least amount of clothing possible, morning is a good time to avoid the inconvenience of undressing; for one may exercise in night clothes or after removing these and before dressing. If any clothing is worn it should be light and loose. As the morning also is the best time for the daily tonic bath, this fits in admirably after the exercises.

In warm weather, the bath is a good means of cool-

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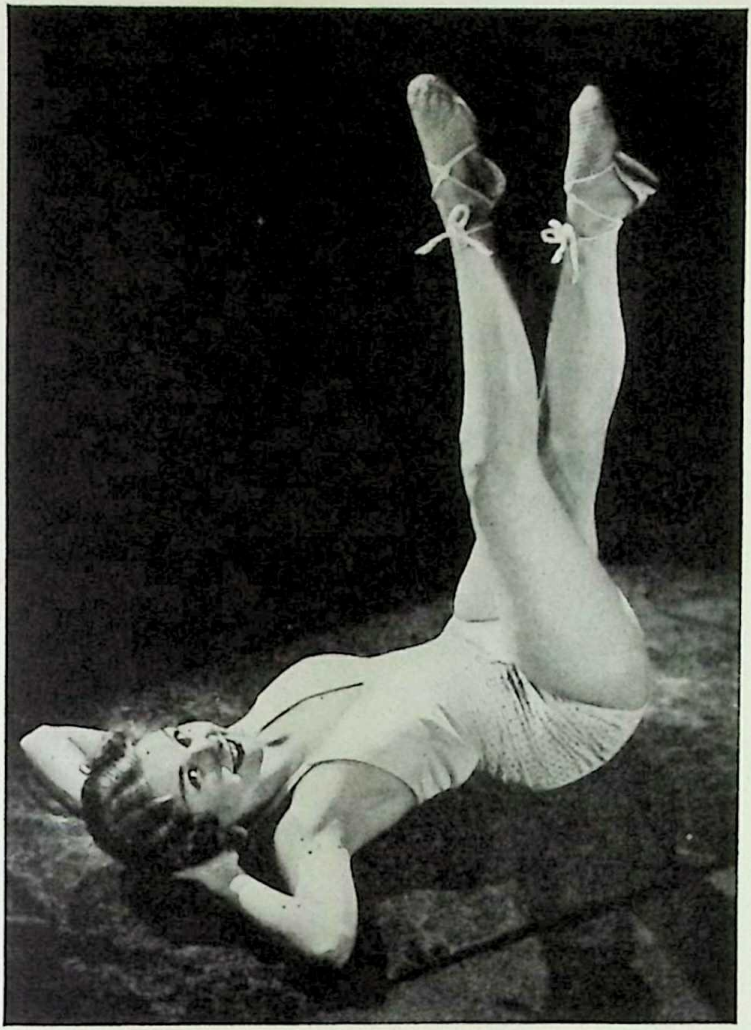

Exercise No. 14. This is the same exercise as the preceding movement except that after the legs are raised to the vertical they are separated, then brought together, then lowered and the movement repeated. Repeat up to six times. Vary by keeping legs together or crossed.

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ing the body and bracing it for the heat of the day; in cold weather, then the exercises warm the body for the cool or cold bath, which, through the body's reaction to it, brings about a glow of warmth that is natural, and difficult or impossible to secure by an other means.

If it is not convenient to exercise upon arising, then exercise before retiring. One then knows how much energy is available for the exercises, though care must be taken not to exercise sufficiently to disturb the ability to sleep promptly and soundly. Exercises should not be performed sooner than one and one-half to two hours after the evening meal, for the stomach should have that much time to make favorable progress with digestion. Do not exercise when tired. It will have a harmful effect upon the entire body. Relax for a time first, then exercise. If morning or night is not a favorable time for exercise in any individual case, any other suitable time in the day may be selected.

Correct Posture in Exercise Important

Care must be taken to hold the body in a good position during the exercises, for posture has a great deal to do with results from exercises, as well as having a constant effect upon the general health and upon the condition of the pelvic and abdominal structures and organs. There are many who do not have beautiful bodies. But there is no one whose body will not present a better appearance of proper posture; and many times all that is required to make a body practically perfect in appearance is an erect posture, with head

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Exercise No. 15. Standing erect with heels together, arms at the sides. Rise on the toes, then lower the trunk to a half-squatting position, straighten the knees, lower the heels. Repeat several times—up to eight or more as endurance increases.

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up, chest elevated, abdomen in. There is less abdominal prominence also, when the body is held properly.

A well-developed body kept regularly in proper posture is much better enabled to go through pregnancy and childbirth without detriment and unsightly changes later than one that is subnormal in its form and posture. When possible, exercise before a mirror, so that the posture may be observed and corrected if at fault.

But while it is advisable to maintain a good posture during exercise and at other times, this posture must be maintained without stiffness or its aim will be defeated. The body must be relaxed, supple and elastic. This can be accomplished without stiffness, as may be demonstrated to oneself by a little attention.

In performing exercises do not make the movements rapidly, but fairly slowly so that a full stretch will be secured upon the muscles and joints and other structures that it is desired shall be in best tone for childbirth. Fast and snappy work is desirable when the tissues already are in the proper condition; but even then there should be sufficient slow stretching movements to accomplish the aim of the exercises in general. Rapid work given to unprepared muscles, ligaments and joints will do more harm than good, by producing strain and perhaps either a protective stiffening or too great a stretch.

Gymnastic exercises are really much more effective when the particular muscles involved in each movement are brought into action and the remainder of

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the body kept relaxed. Proper posture and careful observance of "form" in doing the movements will make it possible to exercise in this way.

Proper Breathing and Breathing Exercises

While exercising care must be taken to see that the breathing is unrestricted. One should breathe regularly through the nose, and never hold the breath, for this has a harmful effect upon the heart and circulation in general. The breathing should be deep, and neither abdominal nor thoracic; that is, the breath should involve the entire lungs. If this is done properly, the abdomen will be first to expand, but the breath should be continued until the chest also is expanded.

Frequently the abdomen should be drawn in, during exercises and also during the day. This will have the effect of keeping the abdominal walls from becoming too greatly relaxed and distended, and help to keep them in condition for their share in labor; also, it will keep the abdominal and pelvic organs in normal position, preventing prolapsing of these.

Breathing exercises should follow each daily period of more general exercises, so as to calm the heart-action and restore the breathing rhythm. Merely elevating the arms while taking a deep breath and lowering them while exhaling will serve as a good finishing exercise, though one may use any other mild breathing movements desired. During the exercises and at all other times during the day, especially perhaps at night,

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there should be a clean sweep of fresh air. The pregnant woman especially needs an abundance of fresh air, and the living and sleeping rooms especially should be well provided with air practically equivalent to outdoor air in freshness.

Amount of Exercise

As to the amount of exercise, much will depend upon the stage of pregnancy and upon the strength and energy and previous exercise experience of the woman. Before pregnancy, a woman should exercise enough to insure development of strength and tonicity of all muscles of the body, especially those of the abdomen and pelvis. During pregnancy care must be observed to avoid more than a very moderate degree of fatigue. The main object at this time is to keep or develop flexibility and suppleness, as I have stated; and it does not require a great deal of exercise for this.

Too much fatigue endangers the heart-action and the circulation of both the blood and the lymph, and it has a harmful effect upon the nervous system. It also tends to produce a relaxation of the tissues that should be in good tone and elasticity, because of nerve weariness as well as muscle fatigue. One should note the effects immediately after the exercises and also some time later, especially toward the end of the day, or in the morning if the exercises are taken before retiring. One may feel just agreeably stimulated immediately after the exercises, but a few hours later may feel the real over-tiring effect of them. Or one

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may feel a little tired after the exercises but better through the day because of them. In this latter instance the exercises have not been too strenuous or continued too long.

Each individual must determine the amount of exercise best suited to her own condition, and only gradually increase the amount. Avoid enough exercise to produce trembling, at least if this condition is not overcome by a very few minutes' relaxation.

If one uses the same amount of exercise at all times, it either will be too much at the beginning or it will not be sufficient later. There should be some progression, but this must be according to the increase in strength and muscle tone; yet it also must gradually decrease toward the later months, especially the last third of pregnancy. Of the sort of movements given in this book, from two to ten repetitions would be sufficient for almost any woman at first, the smaller number for the exercises calling for more strength or nervous expenditure, (such as bending and balancing movements) and the larger number for the simpler, lighter movements.

The Value of "Native" Dancing

Authorities are in agreement that certain forms of dancing are superior to other exercises for the pelvic region, assisting greatly in developing and maintaining organic health. But there are few dances performed by civilized peoples that have any benefit in this direction, and many of them are utterly useless if not

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actually detrimental. Interpretive dancing is excellent when not made too strenuous, but that is the main objection to this form. The once-popular "Charleston" was the best dance of the day among civilized folk for the purpose of developing or strengthening the muscles the future mother needs improved.

But native races have by far the best dances for this purpose, for they dance with their whole bodies, and especially bring into action the muscles of the abdomen and pelvis, and yet avoid severe and straining movements. This contrasts greatly with most of our dances, which are confined chiefly to leg motions. The native races have dances for the expression of every emotion and every activity and phase of their lives, this being one of their chief means of expression.

There are love-dances, life-dances and death-dances, hunting-dances, harvest-dances, rain-dances and healing-dances; also imitative dances, in which birds, animals, fish, lizards, frogs, insects, and other creatures are imitated. The Hawaiian hula-hula dance is more familiar but less representative of these types of dancing I have in mind. This dance, however, has become considerably vulgarized, at least in America.

Because of the wide variety of interpretations of the native dances, even in spite of the fact that these may be considered by some to be very suggestive, and weird conglomerations of movements, a careful analysis of them shows that every possible movement of the joints and muscles must be brought into action in order that they may graphically portray their emotions. And

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these movements make the women of such races superior physically, and far better enabled to make pregnancy and childbirth the natural, painless and safe processes they should be than do the activities of women of civilized races.

Most people are of the opinion that native dances are spontaneous and strictly instinctive. On the contrary, there is a vast amount of training necessary, many years being given to practicing the various movements and dances. Because of this early training the girls maintain constantly the very flexible trunks and very sound and yet supple pelves of youth.

Exercises Simulating Dance Movements

Exercise movements based upon some features of these dances may be adapted for general use, by which much good would be derived in correcting constipation and digestive troubles, as well as improving health of abdominal and pelvic organs. Such are some of the exercises I have included in this volume. It must be borne in mind that the natives carry through their movements for the most part with smoothness and with a definite rhythm. They generally avoid sharp, sudden, jerky movements of the body, though these characterize some of their movements of the head and the extremities.

It is the complete motion, the smooth, rhythmic, continuous and undulatory motion that produces the healthful stretch and strengthening of the muscles and the full and normal movements of the joints of the

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pelvis and associated structures. All cannot take these exercises in the same manner and degree, especially at first; for age, muscular, joint and organic condition, general health, etc., must be taken into consideration in outlining and adapting any set of exercises to an individual's needs.

In any case, make the movements as smooth and continuous and devoid of jerkiness as possible. Repeat each one only a few times at first, to master the movement as well as for preventing over-strain. Do not allow the movements to interfere with breathing. This should be regular and easy, never held during any of the movements of this series or others.

All must admit that natural exercise is best, for several reasons. But most people cannot secure sufficient of such exercises, in the form of games and mild sports; they must resort to bedroom exercises if they are to secure enough exercise for their health's sake. The indoor exercises take a comparatively short time, and require no special dress (none at all being best). In home exercises special stress may be made upon just those regions requiring special attention. They require sufficient mental attention that worries and business and other cares must be at least temporarily driven from the mind. These are some of the advantages of one's own home exercises, and every prospective mother should get her share, as well as continuing with some of them as soon as safe after pregnancy.

Highly beneficial in strengthening and preserving the

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figure as well as for preparing the abdominal muscles for childbirth, is the exercise of standing erect and alternately drawing the abdomen inward and upward as far as possible, holding it for the count of five, then relaxing and pressing the abdomen down as far as possible for a count of five, repeating the exercise five to ten times. Always end this exercise with the uplifting movement. Another excellent exercise is stretching the arms full length above the head, drawing in the abdomen, repeating at intervals during the day. Still another excellent one is lying on the back, with the knees bent and the heels resting against the hips, then raising the hips off the floor or bed as high as possible.

Importance of Rest and Relaxation

Closely allied to exercise is rest and relaxation. I earlier emphasized the need for physical activity, and cannot emphasize this too strongly. But it is as important that the pregnant women receive adequate physical relaxation, particularly during the last three months of pregnancy, though at any stage of pregnancy when a feeling of lassitude appears the woman should rest and relax. As the child develops within the uterus it increases in size, and it forces upward—in other words, the enlargement of itself and the uterus is carried upward. The uterus also increases in diameter as it increases in length. This diameter increase eventually creates pressure upon the large veins of the lower abdomen and the pelvis. These veins carry the

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blood from the lower half of the body and pelvis through the abdomen and thence to the heart, and to lungs for purification.

The upward growth increases the pressure against the liver and stomach. If the diet and general mode of living are in full accordance with Nature's requirements, these pressures may not disturb the functions of any parts of the body. But frequently they cause considerable alteration in return flow of blood by practically obliterating the veins, and they greatly disturb the digestive functions, not to mention bowel activity; and altered circulation is most likely to weaken the developing baby.

The center of gravity constantly changes as the child and uterus gradually ascend within the abdominal cavity. It is necessary for the body to adjust itself to this change. The woman can give considerable help in this by the simple procedure of walking around the room on the hands and feet several times daily, or resting on the hands and knees in a posture similar to a photograph in Chapter IV. This position takes the pressure from the abdominal organs and the spine, gives the large veins a chance to fill up and carry their blood normally, tends to normalize the circulation in general, and gives the woman a surprisingly invigorating rest. One should hold this position for a few minutes and then, if at all possible, should lie down and completely relax for ten or fifteen minutes. If this is done but once a day it will help greatly, but if possible it should be done three or four times at

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least, especially after the fourth month of pregnancy.

In many cases the feet are inclined to ache and, possibly, swell even when there is nothing radically wrong. In these cases—and in all other cases if desired—it would be well for the mother to place her feet on a stool or other slight elevation, or even upon the seat of another chair while sitting, at least part of the time. This is especially restful, allowing also for greater relaxation of the upper part of the body when this is desired.

A good balance between physical employment of some sort and of rest and relaxation is very essential for the preservation of the woman's vigor and her circulation, also her nutrition and her elimination. These benefits all serve her well at the time of her delivery, and help her materially in the final stage of recuperation.

Benefits of Mental Diversion

It is very important that the expectant mother have mental diversion so that she will not analyze too closely every little sensation which in her usual condition would pass unnoticed. It is quite common for women carrying their first child to magnify their disagreeable symptoms, and in consequence being quite generally miserable.

Such a woman possibly may become anxious and timid, fearful of results, and constantly apprehensive of some danger to themselves or child. This state of mind interferes with all the processes of the body,

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and makes it difficult for the woman to secure the restful sleep she should have.

As Walton says, in his very helpful book, "Why Worry?": "It is futile to expect that a fretful, impatient, and overanxious frame of mind, continuing throughout the day, and every day, will be suddenly replaced at night by the placid and comfortable mental state which shall insure restful sleep."

Such a condition as this cannot be successfully controlled merely by exercise of will-power. Instead of worrying, the mother-to-be should keep herself so continuously occupied with pleasant activities, physical or mental or both, that she has no time for anxious forebodings.

If at any time sleep seems difficult to secure, instead of worrying while lying awake it is better just to make up the mind to relax fully anyway. Sleep sometimes seems like happiness: If you seek it directly it seems to evade you, but if you stop worrying about it and think of something else it may come to you unawares! Pleasant thoughts should occupy the mind when expecting sleep. This time is not one for worry and fretfulness.

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CHAPTER IX

General Care of Pregnancy

IT must be understood that whatever aids the mother during the period of pregnancy, assisting her through this period with the least alteration from normal and the least disturbance by numerous symptoms, tends to carry her through the crisis of childbirth with greater ease and safety. Whatever maintains the functioning of the organs at normal or as nearly so as possible prepares the way for a reasonably painless delivery, for quick recuperation of the mother, and tends to provide for the baby its only natural and normal nourishment in sufficient quantity and of satisfactory quality.

Need for Adequate Elimination

Elimination is an absolute essential. But to many people "elimination" means merely elimination of solid waste through the bowels. But elimination is carried on by four distinct avenues: by the bowels, the kidneys, the skin, and the lungs.

In the expectant mother, not one of these four avenues of elimination can be ignored and allowed to reduce below normal without disturbing every function of the body and affecting more or less seriously the mother's and the child's health and vitality. Much depends upon the extent of the interference with the

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elimination through any or all channels as to what will be the extent of harmful results.

Many of the various symptoms observed by the pregnant woman are due solely to retention of decaying foods within their impacted bowels. Constipation is injurious to anyone and everyone at any time in life; but it is more detrimental during pregnancy than at any other time. It is quite impossible to be in the best of health and to produce a healthy unencumbered child so long as one's bowels are retaining for several or many hours the decaying and fermenting residue of one's food. The average pregnant woman is content with a single bowel action each twenty-four hours, and many do not average this daily action. Many others sufficiently frequent elimination in this way by means of laxatives or cathartics—an injurious method.

Much depends upon the amount of food taken into the body as to the amount of solid residue there will be. But when the bowels are normal the frequency of elimination will not vary so much as one would think. There should be at least two bowel actions daily, regardless of the amount of food consumed, unless one is on a fast or fruit-juice diet or other very limited diet. But such a diet will not be continued for any great length of time, regardless of the condition for which it is taken. A far better and safer plan is to insure *three* solid eliminations each twenty-four hours, especially if three meals are taken daily.

To many women this will seem excessive, but it is

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not. Only when the bowel contents are moving briskly along and being eliminated fairly frequently can the woman be assured that there is freedom from constipation and its attending harmful results. When the bowels are free from solidifying masses the blood-vessels of the abdomen and pelvis are free from pressure from this source. They are subject to much pressure, in any extent, from the enlarging uterus and its fairly solid contents. Therefore they should be free from subjection to additional pressure by solid wastes.

Correction of Constipation

The following chapter takes up more fully the subject of constipation and its treatment. Let me point out here, however, that the pregnant woman should not be content with her bowel elimination until she has established the habit of eliminating every morning and night, or every morning, noon and night—once for each substantial meal eaten. She may need to eliminate meat entirely from her diet, as this is a constipating food. She may need to use considerably more of the fresh fruits and green vegetables. An orange upon arising and an apple before retiring usually will help materially.

Bran may be used in addition to the whole grain products. Ordinarily I do not favor large amounts of this article of diet. Some people have aggravated their constipation by over-stimulating their bowels with such roughage. But the pregnant woman *must*

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have bowel actions, and regular and frequent bowel actions. If her diet is correct in general she will need little of the more potent laxative of bran; but also the proper diet will prevent the bran from having as pronouncedly harmful effect as it would have on a diet totally wrong.

Olive oil or mineral oil may be used freely if one does not need to watch the weight. In regard to weight control, olive oil may be used when it is desired to increase the weight, mineral oil when effort is being made to reduce or maintain the weight. Agar may be used, also, but clean unaltered bran usually will accomplish all that agar will do, while at the same time providing some mineral elements and vitamins.

Elimination Through Kidneys Important

The condition of kidney activity is not given enough consideration by most women. Through the kidneys pass highly toxic wastes in solution or suspension, and these must be passed out in ample amounts if the health is to be preserved. Pregnancy exerts an added strain, or rather an added burden upon the kidneys. They should be able to take care of this when it is only the normal increase; but too often the burden does become a strain; and too often, also, the kidneys suffer because of this. Many times the kidneys receive the brunt of the increased burden of pregnancy, because of constipation, deficient skin activity, wrong diet, and other abnormal conditions.

Many women consume various foods that require

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extra work of the liver, which prepares much of the body's wastes for elimination through the kidneys. Often the liver is not able to alter these wastes sufficiently to make them non-irritating to the kidneys. The foods especially tending to cause this trouble are an excess of meat proteins, rich sugary foods and chocolate, sugar and nut confections, rich pastries and gravies.

The body requires abundant fluid at all times, but especially during pregnancy, in order to keep the urine well diluted and non-irritating. There will be less need for large quantities of water if the woman takes an abundance of the leafy or "watery" vegetables and of the juicy fruits, also milk. But it is a good plan for the woman to drink a glass of water each time she hears the clock strike the hour—and to have a clock where she can hear it hourly. The appetite for water frequently is nil, during pregnancy and at other times as well. The woman should make herself drink several glasses a day, however.

Other liquids may be taken, also, making it unnecessary to drink quite so much water as a glass every hour, but supplying the body with satisfactory fluids. Lemonade, orangeade, grapefruitade, pineapple juice, grapeade, loganberry juice, and the juice of any other fruit or berry may be used. For the most part these should be unsweetened or but lightly sweetened, especially if the woman is combating the overweight tendency. Two or three glasses a day should be sufficient of these drinks that take the place of water.

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Of great importance also in keeping the kidneys in normal condition is maintenance of bodily warmth. Inactivity of the skin, through inadequate or improper bathing, limited exercise, insufficient clothing and cold weather, frequently is responsible for failure of the kidneys to pass out waste substances and to filter from the blood the urea, accumulation of which in the body causes the extremely serious condition of uremic poisoning.

Importance of Skin Care

The pores of the skin are countless, with eight miles of sweat-glands indicating that the body has been provided with a very extensive eliminative surface area. It is highly important that these pores remain active if the woman's health is to be retained at its height and the child kept from harmful toxemia. One cannot live long with the skin completely out of commission; probably six hours would end life. But many constantly keep their skin only half alive or half functioning.

A good brisk sweat should be secured every day up to the seventh or eighth month, if possible and if there is no definite contra-indication. Nothing in the world opens up the pores and increases elimination from the skin as does good honest, normal sweat.

A daily bath is essential for the prospective mother's health, and two baths a day frequently are better, especially during warm and hot weather or if the woman is obliged to be at work in the hot kitchen or

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sweeping and dusting, or at anything else that increases perspiration or the tendency to the accumulation of dust on her body. The warm or tepid bath or shower is better for many women, with a temperature of less than 100 degrees—from 80 to 90 degrees being ideal. Every part of the body should be soaped and scrubbed, to thoroughly cleanse the skin and give the sweat-glands an unhindered chance to function.

A great many women have been accustomed to the cold bath, and these do not need to discontinue their practice during pregnancy—hot baths should be avoided, however, as these are weakening and debilitating, especially in pregnancy. If the woman takes the proper kind of a bath daily she will not need a hot soap bath very often—and the warm soap bath will be as effective for cleansing. Hot baths and Russian and Turkish baths should be taboo in pregnancy, except in case of certain complications, such as uremia.

Though the woman may continue the use of cold baths if accustomed to them, still it often is better to temper the water somewhat, to avoid too severe a shock. If this is done, the stimulating and invigorating effects of the morning bath may prove of great benefit, especially when followed by a brisk rub-down with a coarse towel to aid in stimulating circulation.

The massage bath is much more effective for health than the "soaking" bath. With every bath there should be secured considerable friction with a coarse towel or flesh-brush, the friction being applied to every part of the body. Even with cool or cold water this

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will produce a favorable glow of the skin, indicating improvement of skin circulation, which will produce better skin activity in every way. If a warm bath is taken it should be followed by a cold or cool bath, either a shower, spray or splash or by the cloth. But if no spray or shower is provided and the cloth is used to complete the bath, the cloth should be as wet as possible for rinsing.

If the ordinary bath tub is not provided, a woman can secure as satisfactory bath with a laundry tub, or with a baby bath-tub, or even with an ordinary wash basin and cloth. A woman need not omit the bath or consider it less satisfactory merely because she hasn't all the conveniences of some homes. If she *wants* to keep her body clean, her skin active and her health at its best for her own sake and that of the baby to come, she will improvise means for taking care of her health in every necessary way.

Many women have the impression that hot foot-baths bring about miscarriage. There is no good reason for this belief. Surf bathing, on the other hand, may definitely invite a miscarriage, by reason of the shock of cold water, the pounding of the surf on the abdomen, and the exercise required to keep a footing. This type of bathing, therefore, had better be avoided by most women during pregnancy.

Friction Baths and Air-baths

There are baths that do not include water that are highly beneficial, also. Dry-friction baths are excel-

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lent, and may be taken as one bath a day when the water baths is taken at the other end of the day. Nude air-baths are markedly tonic in effect, and soothing in cases of nervousness and insomnia. These should be secured daily if at all possible.

Even on the coldest days, except perhaps where the temperature falls near or below zero, at least a ten-minute air-bath should be secured. Often one may be comfortable in a cold air-bath if wearing warm hose and slippers. If it is decidedly cold, and especially if the woman is anemic and with poor circulation, it would be better to take a few exercises and deep breathing before the bath, also during the bath, and shorten the bath to five minutes. Nothing will keep the circulation more vigorous than deep breathing, provided it is not straining. Nothing is to be gained by breathing so forcibly as to strain the chest and ligaments.

A Pelvic-Toning Bath and Exercise

A very excellent bath for preserving or restoring tone to the pelvic structures, also a greater degree of elasticity, especially of the outer birth canal, is the warm shallow sitz bath. This should not be taken for this effect until the final month or six weeks of pregnancy, and then should be taken daily. The water should be only from four to six inches in depth, and the bath may be continued for ten or fifteen minutes or perhaps slightly longer. A quick cold dash may be given at the completion of this bath and, in fact, is

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preferable. The temperature of the water should not be decidedly hot. This bath may be taken in the bath tub, or in a laundry tub, or just as satisfactorily in a large basin, provided the water is kept at approximately an even temperature.

This bath may be varied occasionally by giving a perineal douche or spray, for which a portable hand-spray may be used. This bath is given while squatting in the bath tub, with the spray directed upward against the perineum—the firm tissue between the vulva and anus. No great force is to be allowed.

The position of squatting is excellent in itself, for increasing the elasticity of the pelvic ligaments and muscles so that at the time of delivery they yield normally and allow the bony pelvis to spread slightly and thus relieve the soft tissues of pressure.

This squatting movement may be made a definite exercise, and may be taken daily whether or not the spray is given for a month or two before expected delivery. Care should be taken to avoid too great pressure upon the abdomen. In taking the movement it usually is better to stand with the feet some distance apart, and in squatting keep the feet flat on the floor. But if this does give too much abdominal pressure vary the posture, raising the heels when squatting.

Douching in Pregnancy

Though many women continue the use of "feminine hygiene" throughout pregnancy, this usually is inad-

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visable. The vagina in pregnancy is considered to be practically sterile, so far as pathogenic bacteria are concerned. The vaginal walls do not contain glands, and they excrete no waste products from the blood. The vaginal secretion comes from small glands around the mouth of the uterus, and serves to keep the birth-canal free from germs. The vagina is much more free from bacteria than is the skin, on which bacteria always are present.

For these reasons, then, it is inadvisable to use the douche, which, in addition to not being necessary, actually removes one of the factors of vaginal protection against disease.

Regular bathing usually will take care of the external cleanliness. If there should be any smarting or itching about the vaginal orifice due to leucorrheal discharge or other cause, the cold sitz-bath may afford relief.

Such a bath is excellent when there is any congestion, or pressure from enlarged hemorrhoidal veins. Often of greater benefit will be cleansing douches of salt-water, two tablespoonfuls to the quart, until the condition is relieved. This is advisable only in the early months of pregnancy. It may bring on a miscarriage or premature labor if employed during the later months of pregnancy.

The Value of Sun-baths

It is impossible for most women to secure sun-baths out of doors. However, a great many can secure them

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satisfactorily indoors, by lowering the top sash of a window on the sunny side of the house and lying on a cot or bed in the sunlight that streams in. Or, a blanket or rug may be placed on the floor upon which one may lie. In this way the bather is shielded from observation.

Remember that it is not necessary to take long exposures during sun-baths. It is better to take them during the mid-forenoon or mid-afternoon during the summer, but at any other time of year they may be taken between these times. Ten minutes would be sufficient for a while, though there is no objection to gradually increasing the time up to an hour or more, as the body becomes pigmented and immune from sunburn. The baths should be completed by a cool bath of some sort, not necessarily extending over one or two minutes in duration.

Constant Fresh Air Important

There still remains an important avenue of elimination—the lungs. I have explained the value of nude air-baths. But that isn't sufficient to provide all the air the woman requires. One cannot absorb enough air—or oxygen, its chief element—during a few minutes or even during one-half the day to last for the rest of the day. There must be fresh air at all times, and the more nearly this air corresponds to out-of-door air the better it will be for the expectant mother's health.

No day should go by without the expectant mother

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spending at least one hour out of the house; and the more she spends above this amount the better it will be for her health. The windows of the house should be open at all times, except when it is extremely cold, and then there should be enough ventilation to insure a constant change of air. It may be necessary to use more fuel, to warm the house, but *use* it. Warm air is not injurious, but stale air or air that is not in motion *is* injurious, at least depressing. And no matter how complete the ventilation the pregnant woman frequently should step outside, or at least to an open door or window, and inhale deeply of unspoiled air.

If it is at all possible it would be best to arrange to sleep outdoors. One may be able to provide a bed on a porch or balcony, or to have a tent in the yard or on a balcony. If this cannot be arranged for, then the bed should be drawn near a window, which should be opened and kept open throughout the night. An awning or other suitable device should protect against rain and snow.

If the window happens to be opposite other apartments, as frequently happens in cities, a double screen at the window will obstruct the view from outside and yet will not prevent a free advent of fresh air and exit of stale air.

If one finds it difficult to sleep with the wind blowing over the bed, the wind may be directed upward by placing a slanting board full width of the window and a foot or so in width before the window, on the window sill within the room. A couple of thin cleats

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may be tacked on the window frame at each side into which this board may be slid whenever desired.

Care of the Breasts and Nipples

With the sixth month of pregnancy the care of the mother's breasts should have attention. All tight clothing about the breasts must be avoided, for pressure prevents increased circulation and development. The breasts should be bathed twice a day with soap and warm water and massaged once daily.

Massage of the breasts must be performed delicately, as these structures are sensitive and are easily bruised. Also, any undue amount of friction applied to them has a tendency to cause sexual excitation, and the resulting violent contractions of the uterus may bring on a miscarriage. The purpose of the massage is merely to facilitate the changes necessary in the glands for the secretion of milk in adequate amounts—though in the majority of women no stimulation to this function is necessary. An additional reason for giving the massage is to help preserve the contour of the breasts after delivery and nursing. See the final chapter for another method of breast treatment for this particular effect.

To give the breast massage, assume a position on all-fours, so that the breasts are pendant. Cover one breast with a towel dripping with cool water for two minutes. This will lessen blood supply through osmosis. Then for five minutes stroke the breast, using gentle pressure, from its insertion on the chest wall

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to the nipple. A daily manipulation will do much to insure normal functioning of the breasts. An incidental advantage of the position on all-fours is that it affords rest to the ligaments that support the breast.

Sometimes a little olive oil or lanolin rubbed well into the nipples after they have been bathed tends to make them more resistant to fissure and cracking. They should be covered with a piece of gauze or a square of clean old linen after the oil or lanolin is applied.

See Your Dentist

As soon as it is determined that pregnancy is established, no time should be lost in seeing one's dentist to have all cavities filled, even if only with temporary fillings—though all teeth should be put in the best condition possible. Then rinse the mouth every morning and at night before retiring with a little milk of magnesia.

One may allow the film from the alkali to remain on the surface of the teeth as long as it will, for further protection against eroding mouth acids. Extractions or major dental operations may well be avoided, unless necessary, on account of "surgical shock." The teeth should be brushed carefully before using the milk of magnesia. Any existing pyorrhea or gingivitis (inflammation of the gums) should be properly treated: the necks of the teeth should be scaled, all tartar and other irritating debris being removed, and a good antiseptic applied to the gums. A lost tooth

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cannot be replaced, so give the teeth the best care and attention possible.

Hair and Scalp Care

The hair, as well as the teeth, often suffers in pregnancy, and should be well cared for during this time, even if at no other. The hair should be brushed thoroughly once or twice daily, for the effect upon the hair itself and especially for the benefit to the scalp. The bristles of the hair-brush should be medium stiff, and of uneven length so as to pass through the hair to the scalp. Shampooing the hair should be done not oftener than once a week, as a rule. The addition of a very small amount of olive oil or vaseline to the hair roots, after the hair is dry from a shampoo, will prevent undue dryness of and injury to the hair. Sun- and air-baths benefit the hair and scalp greatly, but sun-baths should not be continued too long. Finger massage of the scalp is very beneficial to hair and scalp and should precede or follow the daily brushing.

The Harm of Fear and Worry

Now comes a factor for health that is given far too little consideration by everyone, including physicians—a factor that is of great importance to the pregnant woman. This is the subject of emotions. Fear is one of the most prominent of these. The average woman who is pregnant has some degree of fear, and many have this in extreme degree. Women fear they will have this or that symptom or condition; that they will

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not carry the child to term; that childbirth will be difficult; that their figure will be "ruined"; that the child will be abnormal in some way, probably "marked"—and numerous other fears they have. Fears depress every function and poison the body; produce hardened arteries and hardened or stiff tissues in general; and cause youth to vanish, in spirit and in body.

Many women have the worry habit—some apparently worrying because they have nothing to worry about. They worry because of a thousand things that may or may not happen. It is useless to try to enumerate the many things women may find to worry about, for they are legion. Worry hinders or ruins digestion and elimination. It uses up nervous energy and lowers every function. The blood is poisoned, the intestinal contents undergo increased fermentation, the various secretions of the body are altered in chemical nature, and disease is started or aggravated.

A great many women weaken themselves and injure the health by being discontented about many things. They do not properly estimate the value of what they have. Everything others have appears always better to them than what they have. They envy every other woman whatever she may have. They are jealous of all. They find fault with everything done for them. They fret over countless little things. Nothing pleases. They are like spoiled children—and *are* children physically and emotionally. They are selfish to an extreme degree, and even if they had everything they

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imagine they want they would not be contented. For contentment is a mental habit they have not acquired. They sour their dispositions and they sour their secretions and spoil their blood for best nutrition of themselves and for the health and disposition of their developing babies.

Emotional Calm Should Be Cultivated

Women need to cultivate calmness, composure, patience and contentment. Discipline of self is one of the great needs of a great many women (and men as well), and especially is this necessary during pregnancy. Mental poise is even more important than physical poise, in some respects, though they usually go together. There is greater normal tonicity of all parts of the body when there is mental calmness.

Impatience and free rein to appetites and emotions produce a state of tension that is impossible to overcome at the last minute of childbirth, when every tissue must respond according to Nature's requirements if the delivery is to be normal in duration and ease, and free from complications.

It is true that many husbands make it practically impossible for their wives to maintain normal mental composure. Part of this is due to the wives being irritable through lack of cultivation of poise; but many times the husband is directly to blame. He fails to take into consideration that normally there may be slight changes in his wife's disposition, especially if her mode of living is not strictly health-promoting.

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Her little irritabilities he takes as personal affronts and probably indulges in harsh mental abuse. If he were not desirous of having a child, he may because of this blame all his wife's little troubles upon her and perhaps in no gentle language. Or he may be merely inconsiderate of her small additional needs.

If ever a man should be a lover, and gallant and considerate, it is during his wife's pregnancy. He can do much to keep her in a cheerful frame of mind, and happy and contented. It takes very little additional effort to provide for her many little pleasures that she will highly appreciate at this time, yet without which an expectant mother quite possibly may become morose and moody in the extreme.

An unhappy condition of mind created by an unattentive, thoughtless, neglectful or positively cruel husband is one of the most disastrous conditions for the expectant mother, and may result in such changes mentally and physically that there may be no return to normal. This reacts unfavorably upon the child, also.

Avoid Smoking and Tobacco Smoke

Still another factor that is highly important is that of tobacco. It is impossible for the woman's health to remain at its best when she uses tobacco or is obliged to inhale the tobacco smoke of her husband's cigarettes, cigars or pipe, and especially when she is pregnant. Not only her health but that of the child may be seriously affected by this poison. One reason for the universal use of tobacco is that its harmful action

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is very subtle. If its action were less insidious far less people would use it than do.

Nicotine slowly undermines the nervous system, and the sexual system is directly affected by it. Some European, English and American scientists have studied the effect of tobacco and find that the pregnant woman and the child she is bearing are very harmfully affected by tobacco. An English scientist concluded definitely that where the mothers are obliged to inhale the smoke and dust of tobacco used by their husbands there is greater likelihood of abortions and stillbirths. An Austrian scientist discovered that women working in tobacco factories had a much greater liability to stillbirths than other women, and their children when born alive were far more likely to early death. Many of these early deaths occurred in convulsions, brought on by tobacco-poisoning of the mother and thence through her milk. In these women the breast-milk had a strong odor of tobacco.

In Turkey the Koran, (with the writings of Mohammed) prohibits drinking of alcoholic liquors, but tobacco is used universally and practically continuously. A Turkish physician claims that tobacco has caused a great reduction of the health in his country. A Dr. Woods, of Philadelphia, found upon investigation that in early childhood epilepsy frequently results from tobacco-poisoning of the parents. Tobacco users produce children of much lower health than do non-users, the children being much more susceptible to various diseases and less strong to combat and survive

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them. Should a husband and prospective father, then, submit his wife and developing child to the dangers from tobacco, merely for selfish gratification? Certainly no woman who knows the possible dangers from this "weed" will continue the habit if she already has acquired it, nor will she be apt to submit to pollution of her environment with the smoke and odor and dust of tobacco by her husband or any other member of her household. For the woman who has the essentials of real motherhood will run no risks for herself or for her child, when these can be avoided.

Getting Back To Nature

The subject of normal pregnancy and safe and easy childbirth, from all that we have learned in the past pages, is largely a matter of getting back to Nature. It is impossible in this day and age to get back to the ways of our ancestors when they were primitive people. We have no desire to do so, nor is it necessary. There are some ways in which the expectant mother *must* get back *toward* Nature, at least, if she would have good health during her nine-months' period of watchful waiting, if she would come through this period with the least discomfort, if she would produce a normal child capable of enduring the rigors of extra-uterine life and growing to vigorous adulthood, and if she would recover her pre-pregnant vitality or retain it, or increase it if it has not been at its highest.

These conditions have been outlined and explained in the preceding pages. I am confident that after

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learning what is essential the mother-to-be will carry out the requirements, including examinations to determine her physical, organic and structural condition. Even though she may be inclined to follow a half-way plan so far as the health of her baby is concerned—because she may be aware that a great many other women do not follow so rigid a regimen as I have advocated herein and yet have borne healthy children—she well may follow these regimens quite closely for her own safety, to give her greater freedom from pain during childbirth, and to keep her in good health to be able to take proper care of her baby after its birth.

For she knows only too well that regardless of the fact that many women live haphazardly and do not kill their babies, these same women do, usually, suffer greatly in giving those babies to the world. She well knows, also, that many children are crippled or marred in some way that handicaps them for life, because the mothers did not provide for them the greatest possible influences for their health.

Whether primarily for the health of the child or for a legitimate selfish desire to escape pain and discomforts and ill health, if the reader applies the advice I have given she will profit by it directly in her own improved health, in a safe and reasonably painless childbirth, and in a vigorous baby that will be a source of constant delight to her instead of one that requires many unnecessary hours of attention. I cannot ask more as a result of my effort.

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One must face the fact that the mental attitude is vitally important during pregnancy, and make every effort toward mental as well as physical balance and well-being.

Care of Skin and Muscles of the Abdomen

A great tension is placed upon the skin and external muscles of the abdominal wall during the late months of pregnancy. This causes not only more or less pronounced discomfort, but also stretches the skin sufficiently to leave noticeable scars after childbirth.

The elasticity of the skin and abdominal muscles may be retained and somewhat increased through the use of massage with olive oil or some other lubricant, especially before retiring at night. This also will tend to prevent the scarring (with white, glistening lines) of the skin of the abdomen which so frequently results from the pronounced degree of stretching to which it has been subjected during late pregnancy.

The daily cold sitz-bath helps to maintain the tone of the skin and muscles and energizes the whole central portion of the body. The water may be tempered to suit the individual's reactive powers, and remained in only for a moment or two—or any time up to three or four minutes provided reaction to warmth is prompt and complete. The cold sitz-bath should be discontinued about a month before pregnancy is expected to terminate, and a hot sitz-bath substituted.

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CHAPTER X

Abnormal Conditions in Pregnancy

PREGNANCY is a natural condition. Hence it *should* be conducted and terminated with no unpleasant or dangerous symptoms or complications. A function so necessary for the perpetuation of the race could not naturally be a period of discomfort and disease, or one that temporarily or permanently disrupts health, possibly causing death. It is an eloquent testimony to the sad decline from normal conditions that the race has reached when women cannot enjoy their most holy privilege and perform their highest duty without fear of physical disturbances, or a painful termination, with possible serious after-results.

Pregnancy should be a period of increased physical well-being. Metabolism and energy production naturally are increased during pregnancy, at least during normal pregnancy. The very nature of the chemical changes within the body of the pregnant woman are such that every function should be increased rather than retarded or altered from normal. Even the woman who apparently was perfectly normal before pregnancy should detect indications of even greater health, greater vigor and strength, more keenly alert mentality, greater emotional composure. It is designed that such should be the case, since Nature provides for the greatest possible beneficial influences for

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the offspring. Certainly the usual physical and mental condition of pregnant women cannot be said to be favorable conditions for the developing child.

Some of the conditions that make possible the various disturbances of pregnancy may be somewhat beyond the power of the woman herself to alter. She may have inherited an unstable nervous system, or a weak body generally; or she may have had accidents or diseases or operations that have left their mark in particular weaknesses or susceptibilities. But if proper preparation for pregnancy is made and if the life of the woman during pregnancy is conducted normally, the natural tonic effect of this period of a woman's life in itself should further add to the good effects secured by such conduct.

As for the majority of the ills of pregnancy, these are preventable by the woman; for they are the result of sins of commission and sins of omission—of positively detrimental influences that can be overcome, and of neglect in other matters that easily can be avoided.

Among the many abnormal symptoms and conditions that may arise during pregnancy are some involving practically every part of the body. Among the most frequent and distressing are those concerning the digestive tract. I shall briefly consider some of them.

Nausea and Vomiting

The "morning sickness," with or without vomiting, is of such frequent occurence in pregnancy that most

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women take it for granted that it belongs to the condition of pregnancy. Some rely upon it as an indication that they are pregnant. Comparatively few pregnancies occur in which there is not at least the nausea in some degree. The time of this nausea helps to distinguish it from that resulting from biliousness and other digestive troubles. At the same time that there is nausea there is usually an increase in flow of mucus in the mouth and throat, sometimes called ptyalism.

Some few women will have the nausea throughout the day, especially when on their feet. Usually, however, it is confined to the morning. Upon first sitting up in bed there is a "sickness," possibly with a small amount of sour watery fluid rising in the throat or mouth. If there has been a meal of fair size the night before there may be considerable vomiting. The woman may then feel relieved for the day, and may have a keen appetite.

The "sickness" seems to be throughout the body: the woman is "sick all over." The duration of the period when these attacks occur usually is about six weeks, beginning at about the sixth week of pregnancy, though it may begin the day of or a few days after conception, and it may continue for several months. Such cases are however, not common.

Some women are told that such distress will help make the child healthier and stronger and the childbirth easier. This is mere superstition. In itself it has no influence upon the child or its delivery. The conditions responsible for it may have some harmful

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effect upon the child; and the vomiting, if severe, may have a more or less serious effect upon the mother, possibly producing abortion if there is a particularly irritable uterus.

The fact that these symptoms frequently are relieved or corrected by careful dieting and clearing of the bowel indicates that they are the result, in many cases at least, of digestive toxemia (auto-intoxication). There may be in the diet too much fat or sugars; but usually there is an excess of all foods or of rich foods. Again, before conception there may have been insufficient physical exercise to keep the digestive and pelvic organs in proper functioning condition. There may be a prolapsus of the abdominal organs, creating an abnormal pressure upon the pelvic organs. Constipation has a causative effect.

There may be too tight clothing. Or sexual indulgence may be the exciting cause. In most cases there also is some irritability of the uterus, which does not take kindly to its new function. Being closely connected to all other organs by the sympathetic nervous system, and perhaps especially to the digestive system, the uterus when irritated produces a reflex irritation of the stomach, with the symptoms of nausea and vomiting.

Later in pregnancy there may be these symptoms as a result of pressure upon the stomach by the enlarged uterus. In this instance it may be more difficult to give relief, but greater rest and taking the knee-chest position frequently will help materially. Reducing the

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abdominal fat often constitutes the best treatment.

One frequent cause of the symptoms is indulgence in the sexual relations. This produces a greater congestion in the uterus, already containing a greater quantity of blood than usual; it may directly irritate the uterus, and it also may reduce the nervous energy. The increased congestion reflexly disturbs the stomach and nausea is produced.

In a few cases there appears pernicious vomiting, or vomiting of an extremely severe and persistent form. This may begin early in pregnancy. It rapidly weakens and exhausts. Usually the real cause of this form is a toxemia, but the underlying cause usually is an organic disease of the liver or kidneys or some other vital organ; or uterine displacements, interfering adhesions, endometritis, ovarian cyst, multiple pregnancy, or excessive fluid in the uterus. Sometimes the uterus must be emptied in such a case to save the woman's life.

To prevent or relieve these distressing symptoms, the chief consideration is reduction of food and, most likely, considerable modification of the diet as well. Two or three days of nothing but hot unsweetened lemonade or plain hot water often will reduce the general toxemia and the uterine congestion and irritability sufficiently that the nausea will be completely overcome. Usually it will be satisfactory and necessary to continue with a suitable light diet. All food should be masticated thoroughly. One should form the habit of eating slowly.

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Any wholesome hot drink, such as hot water, hot lemonade, hot milk, hot cereal water, especially one made from parched wheat or corn, taken before arising often will give the woman freedom from nausea throughout the day. The citrus fruit juices are excellent for this condition, but should be taken unsweetened. It is important that systemic acids be kept from accumulating in the body, and these drinks and juices, especially plain water or citrus fruit juices, will have this effect if taken liberally. There should be no food taken until the stomach is at ease, and then only wholesome foods, as nearly as possible in their natural state and in limited quantities. Fresh fruits, berries, melons, and green vegetables should constitute the main diet until more liberal allowances of food are permitted by the stomach. A handful of unbuttered popcorn, a slice of dry toast or of zwieback before getting up, and without fluid, will have a good effect in most cases. One should remain in bed for fifteen minutes after eating any of these, then get up slowly—never with a jump.

Rich and highly seasoned foods, much fat or starches, or candies or other sugars, and meats should be avoided. Meats are the only one of the list above given that may be used again when the diet is to be enlarged. The first additions are milk in any form, cheese that is not constipating, especially cottage (pot) cheese, whole grain cereal products and eggs. Light suppers, preferably of green vegetables or fruits or both, usually help greatly.

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The bowels should be kept active (in proportion, of course, to the intake of food), and the warm or hot enema may give great relief from nausea. Two or three quarts of water taken as an enema may produce complete elimination of symptoms. Use the vaginal tip of the enema outfit inserted full length into the rectum, have the fountain bag two feet above the hips, assume the position on the knees and chest or on the right side with the knees flexed upon the abdomen, then allow the water to enter the rectum at gentle force. But avoid any such measures unless they are necessary.

The abdomen may be stroked across the upper part from left to right or upward on the left side during the time the water is entering the colon, or for a few minutes after injection and before expelling. For best results the water should be retained for at least fifteen minutes, preferably longer. This produces a great clearing of the liver and gall-bladder of bile, as the water is absorbed and carried to the liver in large quantities. It also flushes the bowel and the kidneys. This tends to relieve all direct irritations from the stomach and relieves irritation of the uterus.

An ice-bag—or cloth wrung from ice-water—placed over the abdomen may be effective; or bind a flannel bandage around the abdomen, to be worn while on the feet, if added relief is needed.

Hot compresses (fomentations) over the liver or liver and stomach regions and kept on for from one to two hours often will give great relief. These used be-

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fore the enema as described will make the enema more effective. Drinking several glasses of quite hot water and then tickling the throat to produce vomiting (which is induced easily when there is considerable fluid in the stomach) clears the stomach and relieves the distress. When retained hot water thus taken may increase the effectiveness of the enema.

Assuming the knee-chest position or walking on all-fours is sufficient to relieve this symptom in many instances. Such a position relieves some of the reflex nervous impulses due to pressure and distension, thus removing a cause for the morning sickness.

Finally, don't worry!

Until there is complete relief from the tendency toward these spells there should be no sexual indulgence. It might even be better if human beings would emulate the lower animals in this regard, and have absolutely no sexual relations after pregnancy has been established. Were they to do so many of the discomforts of pregnancy would be avoided, and possibly much of the distress of childbirth. More children would be strong, also, for the energies of the mothers would be conserved.

Heartburn

This distressing symptom indicates that the stomach digestion is incomplete, retarded, or temporarily checked, and that temporary excess acidity exists. It sometimes continues throughout the pregnant period, when the appetite is forced. The substance coming

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back into the throat or mouth may be fluid or solid, and is burning and sour or bitter. There may be other unpleasant sensations.

A simple and effective treatment is drinking copious quantities of plain hot water. If it comes up, so much the better, as it washes the stomach; but drink some more after this. Various women may find that certain foods cause this trouble for them, and when there is a definite tendency in such directions, these foods should be avoided.

It will be found that the diet will need correction in most cases if the relief secured by hot water drinking is to be continued. Avoid sugars, starches, fats, gravies, spices, and preferably meats also. Do not eat until the next day unless it be a light salad or bit of fruit, then eat simply.

If the trouble should continue longer, then abstain from food longer. It is necessary to get the stomach free from direct irritation and back in better functioning condition. A small cup of cream, a teaspoonful of good olive oil, or a glass of rich milk ten or fifteen minutes before mealtime frequently will neutralize the excess acidity and allay the resulting symptom. Burnt toast often helps, though for best results usually the stomach should be cleared.

In a preponderance of cases, it is better to avoid all drinking at meal times, and sometimes even soups should be avoided. Take longer walks, or short walks more frequently. Rest also is of benefit, but it should be combined with judicious exercise.

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Flatulence and Tympanites

Flatulence is the accumulation of gas in the stomach and intestines. Tympanites is the accumulation of gas in considerable quantities in the intestines with drum-like distension of the abdomen. These disorders indicate indigestion and fermentation. There may be much distress and pain.

In a majority of persons, certain foods have a particular tendency to cause gas, particularly beans, sweet potatoes, cooked cabbage, onions and squash. Any cereal or other starch food is likely to do so, especially when taken with sugar or acid; frequently sugar and acid also will cause the disturbance, as when sugar is used on tart fruit.

As a preventive measure, care should be taken to avoid foods known to cause these troubles at any time, also to prepare foods simply and to practice thorough mastication. Avoid large varieties at a meal. The simpler the meal the less likely is fermentation to take place, as there will be more thorough and rapid digestion of the meal.

Here again it frequently is advisable to abstain from all food for from one to three days, and to drink copiously of hot water during this time. Hot unseasoned vegetable broths or hot unsweetened lemonade may be of service taken alone, though the plain hot water usually is equally or more effective. The enema given in treatment for nausea and vomiting should be taken, and it will be more effective in these cases if a level

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tablespoonful of salt is added for each quart of enema water. In the later diet avoid rich foods, fats, sugars, and more than a very small amount of starch foods and meat, or avoid meat and starches together. Rely mainly upon fruits and vegetables, and well-balanced rest and exercise.

Constipation

This is one of the most common complaints that afflict pregnant women. It in turn is the cause of various troubles because of the absorption of toxins, and not much less because of the mechanical pressure of a loaded colon and rectum. It disturbs the mother's health, and doubtless has much to do with the health of the child. A large proportion of womankind is constipated at all times, (one medical sage describing woman as "a constipated biped"), and it may be assumed that nearly all pregnant women are constipated to some degree.

Daily bowel evacuations may not be and usually are not sufficient. They may be far below that required, in proportion to intake of food. But there should be *at least one evacuation every day;* and usually it is far better that there be two or three daily. If the bowels and kidneys and skin do not remove all the wastes that forms in the body there cannot be the health and vigor that is normal, and both mother and child cannot but suffer in some degree. The greater the reduction of bowel activity in relation to the

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amount of food consumed the greater the strain upon the kidneys to eliminate the abnormally concentrated and irritating urine. In time they are certain to be reduced in activity, also possibly becoming organically diseased. There is, in fact, no disease of the body that cannot be traced to constipation, though of course this does not mean that every disease *is* due every time to constipation, for in many cases there are other causes more pronounced.

Among the chief causes of constipation are wrong diet and directly constipating foods; physical and mental laziness or inactivity, such as sedentary occupation, on the one hand, or fatigue and exhaustion on the other; the frequent and persistent use of laxatives and cathartics, sometimes purgatives; lack of regular evacuating habits; and, sometimes, constricting clothing. Because many women suffer nausea or morning sickness, they merely nibble at foods, though they may do this at frequent intervals during the day; but the foods they frequently take are in themselves constipating, such as tea with toast, rolls or pastry—the latter constituting abominable combinations and abominable so-called foods at any time.

The wearing of too much clothing about the abdomen with insufficient covering, in proportion, for the arms, legs and chest, causes a congestion within the abdomen, and this leads to intestinal inactivity. This is a more frequent cause of constipation than is known by most people.

Constipation may be caused directly by pregnancy,

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or if it exists before pregnancy it may be aggravated. This is due to the pressure, after a few months, of the gravid uterus. But before pregnancy has progressed sufficiently for there to be any disturbing pressure there may be a nervous reflex action, little understood, from an irritable uterus that produces retarded or sluggish action of the bowels.

So much has been written upon the subject of constipation that it should not be necessary to go into detail here regarding its treatment. The important points of treatment have been suggested in giving the causes. If one knows the cause or causes of a certain ailment one can remove or relieve the ailment by correcting or avoiding the causes. In brief, take plenty of fruit and vegetables; use whole grain (but not too coarse) cereal products; use sour milk or buttermilk in place of sweet milk, part of the time, at least; do not drink with meals, and avoid over-drinking between meals, yet drink enough—five to eight glasses of water daily; avoid known constipating foods; establish regular times for bowel evacuations, *at least* two times a day, thirty to sixty minutes after meals; exercise regularly, if by no more than walking; hold the abdomen in or draw it in frequently during the day; adjust the clothing so it will be more uniform over the body, and suspended from the shoulders: avoid laxatives even for temporary relief; use the enema when necessary, but do not rely solely upon this. Frequently assume the knee-chest position or walk on hands and feet. This straightens the colon and replaces the ab-

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dominal organs, relieving the pelvic and abdominal blood-vessels of pressure. It is an excellent treatment for flatulence, also.

Laxative foods are whole grain products, all fruits, including dried and especially stewed fruits, raw cabbage, cooked green vegetables, and cooked onions, tomatoes, squash and beets, and in individual cases many others.

Constipating foods include those foods that are lacking in bulk and those deficient in vital mineral elements and vitamins—including all foods with white flour as a base (breadstuffs, pastries, dumplings, macaroni, spaghetti, and most puddings except those composed chiefly of fruit); starches; sugars; salted, smoked, pickled and dried meats and fish, and fresh meats as well; American and Swiss cheese; fried and fatty foods; high seasoning; chocolate and cocoa, tea and coffee; dried beans; and to many people eggs and milk, especially boiled milk.

The Internal Bath

One of the best means of cleansing the lower intestinal canal is the internal bath. It often is a good practice to obtain a bi-weekly cleansing of the colon with an enema of a quart and a half to two quarts of warm water. This may be plain, or into it may be dissolved a liberal amount of pure castile soap. This is much to be preferred to laxatives or purgatives—though it is far better to secure wholly natural cleansing by means of sufficient bulk in the diet (salads and

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green vegetables, fruits and whole-grain products), adequate water drinking and suitable exercise.

To obtain the best results from the internal bath it is preferable to use the knee-chest position while the water is entering the colon. In this position the folds of the rectum and sigmoid colon, which form cup-like valves, fall back and permit the water to flow freely into the colon, without the development of cramps that are excited when the injection is taken while lying on the side or on the back. The water should be ejected as soon as possible, or not later than three or four minutes.

Diarrhea

This is not a frequent disturbance of pregnancy, but it sometimes does occur. Usually it is the result of a long period of constipation, and is an effort of the body to right that wrong. In these cases it should not be treated except to reduce the diet to liquids, especially citrous fruit juices or a little boiled milk, or to fast entirely. If it persists, then there must be the fast, fairly complete rest, and the use of the daily fairly hot enema. The later diet should be normally laxative in nature and only gradually increased in quantity. Heat over the abdomen will relieve pain that may be associated with the diarrhea.

Piles or Hemorrhoids

This is a quite common ailment associated with pregnancy, and may be due directly to diarrhea, con-

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stipation, or pressure of the gravid uterus. The piles may be internal or external, blind or bleeding, though the nature of them need make no difference in the treatment. They usually indicate a general laxness of tissues or reduction of nervous energy.

Fasting is the best of all treatments for immediate relief from piles. This may be for from one to three days or more, with plenty of hot water or unsweetened lemonade, the diet immediately following to be of a slightly laxative nature, preferably liquid. Gruel made from bran is excellent. Hot sitz baths followed by short cold sitz baths, and cold or alternate hot and cold local compresses are excellent to reduce the piles and the pain. The hot enema is relieving, also, and may be followed by a very small cool enema or by the injection of an ounce or two of olive oil, which should be at body temperature and retained. The protruding part of the bowel should be replaced immediately after bowel evacuations, care being taken to replace it gently and not to scratch the delicate and inflamed membranes.

There should be considerable rest, though the exercise of walking on hands and feet, as mentioned on previous pages, is excellent, also that of drawing in the abdomen frequently. The position on knees and elbows or, better, knees and chest should be taken several times a day, during which time the abdomen is drawn in several times. The later diet should be that recommended for constipation.

If there has been a tendency to abortions in previous

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pregnancies it would be well to avoid more than very brief hot and cold local applications or sitz baths. However, these will not make sufficiently increased change in the deep pelvic circulation to endanger abortion in most cases.

Loss of Appetite

Unless there is constipation or nausea to cause this condition, the pregnant woman should not be concerned. Usually it is temporary and is necessary to correct an abnormal condition. If the demands of the body are heeded the appetite soon will return. There should be no food taken until this occurs, for it will not be digested if it is not needed by the body.

For the faintness that may develop while waiting for a hunger appetite, drink hot water or hot lemonade, hot cereal coffee without sugar or cream, or hot cereal broth very lightly salted and strained. When the appetite returns do not attempt to make up for lost time; eat moderately. The woman need not fear "starving" her child. The average woman has the impression that she must eat for two. It is true that there are two to "feed," but as the child develops at the rate of only about one-half an ounce a day, and as the women, as a rule, take too much food they do not need to increase the quantity during pregnancy—and it usually would be better for mother and for child even to reduce the diet. The child's nutrition will depend upon the health and proper nutrition of the mother, which are not so much a matter of quantity

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of food consumed as of food assimilated and quality of food, and of other health factors of which there are many.

Excessive Appetite

This frequently is one of the most stubborn conditions with which the pregnant woman has to deal. Some are "hungry" all the time, even immediately or shortly after a meal that should be more than satisfying. The condition usually is not hunger at all, but an irritation, and is somewhat similar to the nausea of pregnancy, as it is due to irritation of the stomach, either reflexly from the uterus or from previous overeating. This is as greatly to be feared as a loss of appetite, for it frequently leads to fat, to an extreme general toxemia, possibly with skin eruptions, more serious digestive troubles, nervousness, sleep disturbances—and, even more serious, great development of the child so that childbirth is a very painful and serious event for both mother and child. Infection following childbirth is much more likely in such a fat woman.

If the diet is proper, mainly of fruits, vegetables and milk, the quantity no more than necessary, and all foods are masticated thoroughly, there is not apt to be this difficulty. Will power may be necessary to conquer the trouble after its development, but it *must* be conquered. There should be regular meals of reasonably small quantities, and no breaking of this schedule except to *avoid* a meal occasionally: no eating between meals. As the sight and odor of foods

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tempt the appetite, keep out of range of these as much as possible. Get plenty of open-air activity. Drink hot lemonade or plain hot water when the appetite seems to be keen between meals, or get out for a walk, or divert the attention from food and hunger in some other wholesome manner.

Abnormal Cravings

During pregnancy many women crave unnatural articles of "food," such as slate pencils, chalk, starch, pickles, vinegar, etc. Such cravings usually are the result of a denial of the body of sufficient of the mineral elements present in natural foods before and during pregnancy.

As a matter of fact, a proper diet will supply enough of these elements and such abnormal appetites will be prevented. The diet should be ample, but not in excess. Fruits and green vegetables and perhaps milk and eggs and whole grain cereals should be taken in considerable amounts, and in fact these should be the chief foods used. General hygienic care will be necessary, of course, and sexual indulgence should be avoided. When the cravings for an unnatural article appear, eat an orange or some lettuce or drink some milk; or, it may be that physical activity will allay it.

Inflammation of Gums and Mouth

One or the other of these inflammations frequently develops during pregnancy, though there is not often bleeding of the gums. Such conditions are due to gen-

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eral toxemia and insufficient quantities of raw, vital foods and foods requiring mastication. Wrong combinations of foods, such as sugars and starches, acids and starches, and acids and sugars, are frequent causes. The diet must be proper, mastication encouraged, digestion improved, bowel activity normalized. In addition to this it is of benefit to use a boric-acid solution as a mouth wash several times a day.

Kidney Trouble

It is quite common for women to develop kidney lesions during pregnancy, or for previously existing troubles of this kind to be brought to light or to be greatly aggravated. This is not to be wondered at, since the kidneys share with the intestines the principal work of eliminating from the body the waste materials, and since most women have far more of these waste elements than normal, especially during pregnancy. Constipation, insufficient skin activity and body warmth, over-eating, particularly of meats and other proteins with insufficient physical activity, and inadequate water drinking are the chief causes of kidney troubles at this time, as at other times as well.

Interference with bladder action by the pressure of the gravid uterus is one of the factors in the causation of kidney troubles, also, by causing the bladder and kidneys to retain the urine or part of the urine for unnaturally long periods of time.

While it has not been definitely proved that uremic

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poisoning from kidney trouble is the sole cause of the convulsions of *eclampsia* that sometimes take place during pregnancy and in connection with labor or shortly after labor, it is known that kidney affections are present and increase the severity of all cases where such convulsions develop.

If the woman has kidney trouble before pregnancy it will be very necessary for her to give extreme care to her diet and to all elimination and to her health in general during pregnancy. In any case it is important that the diet be light, easily digested, free from irritants to the kidneys, such as meats, spices, tea and and coffee, etc., and that there be an abundance of natural foods—fruits, fruit juices and green vegetables especially.

The use of the exclusive milk diet is excellent in most of these cases, as it flushes the kidneys without irritating them. Flannel bandages about the abdomen, hot compresses over the kidney region or entire lower half of the back, or wet compresses covered with flannel about the trunk, will be of benefit. There must be considerable rest, though walking should be indulged in daily.

Bladder Irritability

It is common for pregnant women to have some disturbance of the bladder. Sometimes it is difficult to pass the urine, at other times there is almost incessant desire, and toward the end of pregnancy there may be involuntary passage of urine, especially when cough-

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ing, sneezing, walking or otherwise exerting oneself. When the bladder is slow to act, whether or not there are considerable quantities of urine, there should be taken more natural fluids and less solid food. Moderate exercise will help.

If the bladder is very irritable more water should be taken, or a milk diet resorted to, or at least an abundance of the raw green vegetables and fruits, but sometimes little of the citrous fruit juices unless considerably diluted.

As under all circumstances, the bowels should be kept active, but this is one condition where laxatives are particularly to be avoided, because they extract fluid that otherwise would pass through the kidneys and bladder and make the urine more diluted and less irritating. A concentrated urine is detrimental to these structures. The taking of a sitz-bath, fairly hot, for five or six minutes, followed by a quick cold sponge or wet-hand rub to the parts that were immersed, will give considerable relief. External heat over the bladder is excellent, also. This may be applied by hot compresses, hot-water bottle, electric heating pad, heat lamp or other means. Considerable rest frequently is required.

Skin Disorders

Other abnormal conditions of the skin besides jaundiced skin are noticed in pregnancy. Pruritis, or severe itching of the external genitals and about the anus, is quite common and sometimes is distressing,

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especially at nights and in cold weather. It may or may not be associated with redness. The cause may be from irritating discharges from the cervix or vagina, irritating urine, excessively dry skin, or eruptions or inflammation. Other skin complications are eczema, hives, herpes or shingles, vesicles, and pustules.

If there is inflammation, local applications of cold cloths saturated in a boric-acid solution will give relief. For dryness a little glycerine or olive oil or vaseline may be applied by hands or cotton. For all skin conditions it is necessary to alter the diet and open the bowels and improve skin and kidney activity, for they develop only when there are abnormalities in these eliminative organs and when the diet is toxin-producing.

Headache

This symptom is quite frequent during pregnancy. Toxemia is the usual cause, and greater care in diet and to insure better bowel activity usually will relieve it. Reflex irritation from the uterus is another frequent cause. The headache from this cause usually centers mainly at the "crown" of the head and at the base, and not fluctuating so much as the toxemic headache, because of the more constantly present uterine irritation. Toward night it increases, but reclining gives relief. Persistent headache or persistent vomiting after the fifth month of gestation should create a suspicion of possible kidney involvment and generally calls for a urinalysis in order to determine whether

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such a condition has developed. There should be considerable lying down. Hot vaginal irrigations may be given if there are no contraindications. Hot sitz-baths may be as serviceable as the irrigations, and sometimes are safer. Hot applications may be made to the crown and base of the head. Sometimes hot foot-baths will relieve. The knee-chest position is of benefit also. Insure that every other health factor is observed.

Sick Headache

This distressing derangement, complicating ordinary headache, develops frequently during pregnancy, from heavy eating, too much sweets or starches or fats, tea, coffee, chocolate or cocoa, digestive disorders, liver congestion, physical or mental fatigue, anxiety or worry, etc. Reducing or eliminating the classes of foods mentioned, getting more fruits and vegetables and laxative foods, also more relaxation, perhaps high colonic irrigations of fairly hot water, and drinking much hot water, with or without unsweetened lemon juice, usually will prevent or relieve the attacks. Hot foot-baths are excellent in many cases, also fomentations (hot compresses) over the liver area or over the entire abdomen.

Insomnia

Some women are disturbed greatly by lack of ability to secure refreshing sleep, usually because of eating improperly, though sometimes because of the

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uterine irritation. Eating a heavy meal in the evening is a frequent cause, also drinking tea or coffee; sometimes sexual indulgence is the cause, especially if it is incomplete for the woman, but also if complete but frequent and especially exhausting to the woman. Worry is a cause, but worry because of the inability to sleep will do more damage than will the loss of sleep itself.

Taking a bowl of hot soup or a glass of hot milk or of fruit juice instead of supper is an excellent remedy in many cases. Hot or cold foot-baths, neutral sitz baths or full leg-baths (sitting baths) with good friction following, or dry friction alone, may be effective.

Frequently, hot spinal packs, followed by short cold applications or gentle massage or friction, with or without a cold cloth to the back of the neck (or sometimes the cold cloth alone) many times will correct the condition and give good sleep. It is not as harmful for one to lose some sleep as most people think. If this idea is held firmly while securing complete relaxation of the body and mind, it is very likely that sleep will come readily, and within a short time there will be little or no trouble in going to sleep nightly upon retiring.

Eye Trouble

The eyes may be more or less seriously affected by the general toxemia, and especially when this has lead to kidney derangement. The usual conditions are

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mild, such as specks before the eyes and dimming of vision.

Possibly, there may be retinitis and optic neuritis, which may be painful and of such degree as to seriously affect the vision—temporarily usually, but sometimes permanently, especially if the kidneys are permanently injured. The avoidance of these symptoms depends upon avoidance of toxemia and organic disturbances. When they do develop it is high time to begin a strict regimen of diet and general physical improvement.

Muscular Pains in the Abdomen

These may become disturbing, when the abdominal wall has not been strengthened by suitable physical exercise.

Quite often, if exercises are begun gently and increased gradually they may reduce these pains; but usually by the time they develop it is almost too late for the previously inactive woman to correct the pains and their cause. In such cases it would be preferable to wear a light, semi-elastic belt properly fitted and permitting adjustment for the later abdominal expansion.

Neuralgia

This is a common symptom during pregnancy, especially in women who are "high strung" and take themselves and their families and homes too seriously, for this is possible. At any rate, some give their full time to these, worrying over countless minor condi-

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tions, without sufficient rest and relaxation. Those who bear children in rapid succession are liable to the complaint also. "Eating for two," of heavy foods, is one chief cause, especially when there is a deficiency of the natural mineral-bearing fruits and green vegetables. Too much salt, starch, sugar and proteins contributes to the production of neuralgia.

Avoiding these causes will help one to avoid this distressing symptom. If it develops, see to it that the diet for a while is almost exclusively of natural foods. Get plenty of rest—mental, physical, emotional and sexual. Keep the bowels clear. Get a blanket pack or hot and cool sponge, to secure better skin activity. Place heat to the painful area, by electric pad, hot-water bottle direct or over wet cloths, or by hot salt- or sand-bags or any other available means. If the neuralgia is caused by the teeth, supplementary dental treatment probably will be effective. Strictly avoid pain-killing remedies.

Mental and Emotional Reactions

It not infrequently happens that pregnant women undergo more or less change in their mental outlook and emotional reactions. Some have unusual imaginings, fears and forebodings, of things definite or of nothing in particular—vaguely of some impending calamity. Or a woman may change in her attitude toward her husband or her children or friends. There may be considerable mental depression, or apparently causeless weeping spells. These may result from the

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uterine irritations, but usually they result from wrong hygiene, in the ways that I already have pointed out many times. Sexual relations may underlie these fears and gloomy forebodings, and sometimes thoughtless ignoring of some of the desires of the wife by the husband may seem to be the cause. Sometimes they come and go, sometimes they are quite persistent.

Correction of causes is necessary, if they can be determined. Hygienic care is highly important; more rest and relaxation, freedom from home worries, and change of scene may be necessary. The husband should devote even more time than usual to his wife in this condition, but he must avoid showing concern. This is the time when true companionship is especially needed. Walking, automobile riding, an agreeable show or congenial and tactful friends, music, reading, flowers—these and other formerly enjoyed pleasures may be very helpful if provided at this time. But these must be supplied casually, naturally, and not obviously for the purpose of pandering to or coaxing a sick woman; for unconsciously, unintentionally, the woman's condition may be aggravated by indications on the part of husband or others that she is abnormal —much as a child may be spoiled by pandering to contrariness.

Fainting

Sometimes a delicate woman will have spells of faintness during pregnancy, and may occasionally faint. This may be due to lowering of blood pressure

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or vasomotor nerve-tone, or to insufficient nutrition, anemia, sexual excesses or even mild indulgence in some cases, loss of sleep, tight garments, or some other cause quite easily discoverable and remediable. It may be due to heart disease, then indicating a condition that requires considerable care. In other instances it will not be a particularly serious condition, though efforts should be made to remove the cause. Quite possibly, a serious shock has been sustained.

There should be a wholesome, nourishing diet adjusted to actual needs, more rest and relaxation; or, if there has been too much pampering and ease, more activity. Mild exercises and gradually lengthening walks will be of considerable benefit, though in case of heart disease only the walking should be allowed, except under expert supervision. There should be plenty of fresh air at all times, some direct sunlight but not exposures long enough to secure a weakening effect from the heat, and there should be plenty of sleep.

In case of fainting, all that is necessary is to permit the patient to lie horizontal or with head slightly lowered, remove all constrictions, provide plenty of fresh air, and perhaps apply cold or cool water to face and throat. A few sips of cold water and rest following will help her to recover her former energy.

Palpitation of the Heart

Women quite frequently have this disturbing complaint when pregnant, especially nervous women. It may be due mainly to indigestion, constipation,

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anemia, or physical or mental fatigue. The pressure of the uterus upon the large blood-vessels also is a leading cause during pregnancy. It is most pronounced upon lying down. Omitting a meal or two, or substituting only fruit or vegetables for more "substantial" food, will help in case of indigestion. But in case of anemia it is advisable to increase the diet. Or if ample food is being taken, make a radical change to include fresh and sweet fruits, green and root vegetables, some whole grain products, and more milk—the vital foods that build blood and tend to restore normal nerve action. These foods contain an abundance of calcium and phosphorus in available form, and these are the elements, especially calcium, that the heart requires for normal rhythm and force of heart-beat.

More rest may be required, but if there has been too much rest, as is frequently the case, causing a lowering of tone throughout the circulatory and nervous systems, then walking and moderate exercise should be taken up, if the trouble does not first appear too late in pregnancy. Cold cloths placed over the heart region will quiet the heart temporarily; sometimes hot cloths will be preferred, and may be as effective in certain cases. The knee-chest position will relieve pressure and frequently restore normal heart-action.

Cramps

Cramps in the legs are not infrequent, and may be more or less severe. They usually result from pressure of the uterus upon nerves leading to the thighs

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and legs, though they may be the result of anemia, toxemia, constipation, or insufficient exercise, or if tight circular garters are worn these may cause the cramps.

When they occur, loosening all constrictions is necessary. Direct friction to the region affected, with quite deep kneading or grasping of the painfully cramped muscles, usually gives quite instant relief. Lying on an inclined support with the head down and feet up, especially while friction is being given, is of benefit.

Frequently, hot cloths or heat from a therapeutic lamp or of a hot-water bottle to the lower back may be applied with relief, with or without the treatment just mentioned, and the heat may be applied directly to the affected muscles also with relief.

Regularly the clothing should be worn loosely, and there should be wholesome hygienic care, with enough general exercise to improve the circulation to the affected parts especially—the same areas usually being affected time after time. Deep breathing will be of great benefit.

The cramps may be in the back or either side of the abdomen, and when in the abdomen may be so similar to labor pains as to deceive the woman. If during the pains there is felt no contraction of the uterus when the hand is placed on the abdomen, these pains are merely cramps, sometimes called "false labor pains."

Heat applied to the region affected, with or without

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gradually deepening pressure or massage, or frequent barely warm sitz baths will relieve the cramps. Look after the health in other respects as mentioned above, keeping the elimination active but without forcing it, and perhaps exercise more.

Varicose Veins

These not infrequently develop during pregnancy, but they also develop at other times, from constipation, tight clothing, long standing, general lowering of tone of circulation, general weakness, etc. These same conditions may be the chief cause during pregnancy.

True, pregnancy tends to make enlarged veins more prominent, but rarely is the direct cause of them. There may be general puffiness and considerable pain. The right leg is more often affected, and worse than the left when both are affected at once. Very frequently the veins are restored to normal after delivery, especially if the woman does not arise too soon and has good general tissue tone.

Varicosities of the lower leg sometimes are local, forming large knots like tumors. They may be quite painful and are physically and mentally disturbing, but may not be at all serious.

Use care to avoid constrictions. If there is danger of the veins enlarging noticeably, lie down at every opportunity, preferably with the legs slightly elevated. Lying with feet elevated, upon an inclined mattress or board, is particularly beneficial.

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If one's daily tasks and duties make it necessary to be often on the feet, keep in motion—walking a few steps occasionally, raising the knees or extending the legs forward one at a time (while standing), rising on the toes, and on the heels, and doing at least a partial squatting exercise occasionally.

Bathing the entire lower leg with cold water is excellent. Lying on the back after wrapping cool wet cloths around the feet and legs is very helpful. In this position stroke the legs firmly from the feet toward the thighs. Sometimes the massage is more effective with the cloths removed. This treatment also helps bring about restful sleep. A neutral tub bath for thirty minutes at night before retiring usually will keep the veins in good condition for the first six or seven months of pregnancy; but after that time it may be necessary to take an additional bath earlier in the day. A flannel or gauze bandage or one made of strips of rubber wrapped snugly but not tightly about the leg usually will support the veins if these other measures fail. The wrapping should begin at the toes or ankle and continue smoothly, as far up as necessary. Or an elastic stocking made to fit and worn over a thin gauze stocking may be preferable. An "Ace" bandage is excellent also. This is a woven cloth, elastic in nature without rubber. In a few cases it may become necessary for the woman to remain off her feet as much as possible. Keep the bowels active.

If there is general swelling of the legs, with or without varicose veins, it is advisable to consult the doctor

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for examination. Such may be due to heart, kidney or liver disease, and may call for a radical change in mode of living, also some rigid treatment. Swelling of the feet is one of the danger signals. It *may* not indicate anything serious, but it frequently does; and for this reason expert care should be secured. The use of cool wet cloths about the legs, with massage from the ankles toward the hips, as described above, often will relieve or even remove the swelling.

Leucorrhea

During the later months of pregnancy, especially, there is likely to be an annoying discharge from the vagina, due to the general toxemic condition, constipation, inflammation of the uterus, or pressure of the uterus upon the local parts, causing irritation. If the general toxemic condition is removed the vaginal tract will become clear and a healthier channel for the birth of the child.

For a while adopt a cleansing diet of fruits and vegetables mainly. Keep the bowels active, using moderately warm enemas for a few days if necessary. Fairly hot vaginal irrigations of boric-acid solution will be cleansing, but this is only a palliative measure and usually is not necessary. Alternate warm and cool sitz baths are of service. External local bathing with boric-acid solution or solutions of soda bicarbonate or epsom salts, should be given daily. A cotton tampon, made of absorbent cotton, saturated with glycerine may be worn for a couple of hours daily for

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a fortnight or more. Look after the hygiene in every way.

Itching or Smarting

Itching or smarting about the vaginal orifice may be relieved by using cleansing douches of salt-water, using two teaspoonfuls of salt to the quart of water, until the condition is relieved. Fairly warm or tepid or barely cool water may be used, according to relief given. But the treatment is to be used only during the first few months of pregnancy. To use it later may result in miscarriage or premature labor.

Anemia

There is almost always some degree of anemia during pregnancy. But it may progress to a very severe degree, the blood color and red blood cells being as low sometimes as one-third of normal. Usually the cases that are more than a very moderate degree (and perhaps even the slighter cases) are due to lack of general hygiene, including insufficiency of fresh air and sunlight, relaxation, sleep and wholesome food. Too much physical work, worry, anxiety, over-indulgence sexually, and other conditions that sap the physical and nervous energies are other chief causes.

The treatment consists of correction or removal of these possible causes, with adoption of a diet largely of raw foods, with a good proportion of fruits and vegetables and milk, possibly the yolks of one or two eggs daily. Raw eggs whipped in milk or orange juice

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provide blood-building elements in easily digested form. The taking of raw or cooked liver or one of the various liver extracts is also highly recommended in many cases.

Danger Signals

There are certain symptoms occurring occasionally during pregnancy for which the physician should be consulted. These conditions are: When the urine is reduced below three pints daily; milky or especially dark, or markedly strong smell; persistent headache over the front of the head; persistent or frequent dizziness; disturbances of eyesight, especially blurred vision; swelling of the face and hands or feet; blood from the vagina, even in small amounts; neuralgic pains in the pit of the stomach; constipation that is persistent; extreme anemia that grows progressively worse.

The list of possible abnormal conditions and discomforts is fairly long, I admit; but no one should be dismayed. No one woman ever will suffer all of these conditions, nor many of them, regardless of how poor her health; and any woman in reasonably good health will have but few if any of them, and these in mild form. Some will come and go, without any treatment, possibly tarrying for but a short time only. Some, it is true, may be more or less troublesome.

For emergency treatment until the arrival of the doctor, take a hot enema; then a tub bath at a temperature of from 110 to 115 degrees, and get into bed

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to sweat under a blanket pack. Drink plenty of water or hot lemonade to help the sweating process and reduce the dangers of uremic poisoning.

Such symptoms are sufficiently uncomfortable and disturbing of themselves. But the pregnant woman or the woman contemplating pregnancy should remember that any mode of living that permits the development of such abnormal conditions makes possible a troublesome pregnancy and a difficult labor, with all the dangers the latter entails upon the mother immediately and later, and upon the child.

I want to impress upon my readers, however, that it is a comparatively easy matter, by living according to the rules outlined in this book, to avoid all of these or at least most of them and the most severe one, also the possible more disastrous conditions of pregnancy that I have not mentioned (because they do not belong in a book of comparatively limited scope). Most of these conditions will respond to treatment quickly, after they have developed in mild form; but it always is wisest and safest to *prevent* their development. This for the most part is possible, and without great sacrifices and inconveniences, as many may fear.

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CHAPTER XI

Avoidable Mishaps of Pregnancy

WHEN we stop to consider how perfectly natural is the period of pregnancy, we well may be appalled at the seriousness of this phase in the lives of so many women. From the first day of pregnancy to the time when the woman is again up and about her normal duties after delivery, she should be a healthy, normal woman, free from inconveniences and dangers. It is a pity that such is not the case with most women.

By this I do not mean that the majority of women are in immediate danger. But far too few pass through the period free from disturbances and distress, and emerge from it with full vigor. Civilization has so altered our mode of living and so weakened the resistance of the race that it might well be said that as a woman enters the period of pregnancy she enters a vale, ever within step of a precipice over which countless of her sisters have fallen and continue to fall.

The borderline between health and disease during pregnancy is extremely narrow, and may be passed so easily and so quickly that before a woman suspects her danger she may be in some more or less critical condition. Or she may pass the critical period of childbirth with or without being endangered, only to find that her health and vitality seem to have been shattered: the vigor, the ability to work and play and

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enjoy life to the fullest or in her former manner do not return. It sometimes happens that the woman who suffered little throughout pregnancy finds herself in poorer health after childbirth than does the woman who suffered during this period.

Usually, however, the woman who passes through the nine months, and especially through childbirth, with comparative ease finds her health quickly restored to normal. It is the woman, usually, who has a miserable time during the period and its critical termination who is more apt to find her health far below par after rising from the child-bed, and who finds her confinement to that bed longer than the usual to be necessary.

These things should not be: The numerous possibilities for trouble are avoidable, in most cases, and in practically all cases it is possible to minimize those dangers very greatly. It is true that the causes of some of the complications and mishaps are not known definitely; but it is not necessary to know the exact starting point and physical and chemical condition that brings on many disorders in pregnancy or at other times, to know how to prevent them.

We know that our present mode of living is contrary to Nature and natural laws, to such an extent that we have almost countless so-called diseases, with new ones developing occasionally, and that it is almost impossible to find a woman in *perfect health.* It is true that in many respects we cannot return to the lives of our pioneer forefathers. But that is not necessary, and even that would not be ideal unless we could

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carry back with us our present facilities and possibilities for a better diet and for better bodily cleansing—the only two factors that can be utilized today to better health advantage than in pioneer and earlier days.

We can make some changes in every factor that controls our physical well-being, however, and it has been my life work to teach as many as I might reach how this may be done. It is necessary for everyone, if he would have the best of health and be able to get the most out of life by putting the most into it; but in no way is it so necessary as for the woman who is pregnant and the woman who contemplates pregnancy. For the bringing of children into the world is one of the most far-reaching of responsibilities anyone ever will have to face. It is not only for the woman's own relief from discomfort and danger that she should be able to pass through pregnancy and childbirth easily and safely; it is as much for the sake of the child.

It must not be understood from the heading of this chapter that every woman can be made completely immune from all of the mishaps of accident and disease known to pregnancy and childbirth. Even with the best of care there is an occasional mishap, the cause for which being undiscoverable or, perhaps, uncontrollable. The woman may have inherited some specific weakness that makes her susceptible to one or more of them. Or she may have had some previous disease or operation that left its mark in some sort of weakness or mechanical disturbance. Perhaps when

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she conceived she had some disease or abnormal condition that made some mishap likely and unpreventable, especially if it existed without recognition or proper care and attempts to correct it. Then, of course, there are various accidents that cause trouble. I shall briefly enumerate some of the abnormal conditions that possibly may develop during pregnancy and childbirth.

The first stage of labor is preparation of the birth canal by dilation, which is the chief purpose of the "labor pains" or contractions. Then comes the second stage, or that of expulsion of the child. The first stage *normally* is often of only three or four hours' duration, though much longer in first pregnancies as a rule; depending upon the elasticity of the tissues, the size of the child, and the force of the expulsive muscular contractions. The second stage is an hour or so in first labors, from ten to thirty minutes in many later labors. The third and last stage of delivery is that of birth of the placenta or "after-birth," and usually is over within ten or fifteen minutes. As a large percentage of cases are not normal, the average duration of childbirth from the beginning of the first stage to the final expulsion of the placenta is from ten to fifteen hours, or even longer, whereas it should be only about six or eight hours.

Precipitate Labor

This is a sudden or quick termination of labor, caused by excessive "labor pains" and abdominal con-

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traction, a large roomy pelvis, small child in relation to the passages, or weakness of the resisting tissues, especially in women who have borne children.

Usually precipitate labor produces no serious damage, but not infrequently it causes lacerations, particularly in the first childbirth. Shock may be produced, because of the quick emptying of the uterus and abdomen, with a sudden drop in blood pressure as a result.

The after-birth or placenta may be torn loose from the uterine attachment, which may cause severe hemorrhage that greatly weakens the mother, or suffocation of the child, or partial or complete turning inside out of the uterus. There also is the danger of expelling the child in dangerous places, and of severing the cord, with danger to the mother or the child or both.

When there is evidence that childbirth is about to take place and it is known by previous examination that the pelvis and child are disproportionate in size, or by previous experience that precipitate labor is likely, the mother should get in bed at once at the onset of pains and be carefully watched. She should be advised to refrain from contracting the abdominal muscles, or else to lessen the force of them by keeping her mouth open when there is a tendency to contract them.

The head of the child may be held back by constantly placing the hand over the external vaginal orifice—but the hand should be thoroughly sterilized by

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soap, hot water and brush and a disinfectant before applying.

Better yet a sterile towel may be placed against the vaginal orifice and the perineum. There should be no interference of this kind by any member of the household unless the attending physician—who should be called at the onset of pains—is delayed in reaching the mother and childbirth seems imminent.

In some cases where the uterine contractions are excessive there may be rupture of the uterus. But this is likely only when the pelvis is deformed or very small, or the child's head large, or some other condition present that causes considerable resistance to the uterine contractions and the progress of the child along the birth canal.

In the matter of preparedness, conducting the period of pregnancy in such a way as to retain or develop the best condition of health possible will keep the nervous mechanism and uterus in such condition that the contractions are not likely to be excessive, and the child is not apt to have developed to such size that it offers extreme resistance. The soft parts, also, will be more apt to yield. Prevention of rupture of the uterus may tax the skill of the obstetrician to its uttermost.

Feeble Pains

There may be deficiency of uterine contractions, which produce prolonged labor. The contractions may be simply feeble, or they may be insufficient and yet painful.

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Lowered tone of the muscles, associated with general muscular weakness or lack of development, is one of the common causes of feeble uterine contractions. Due to resistance, especially in the woman pregnant for the first time, the uterus becomes exhausted or nearly so, in which case its contractions will be deficient. The uterus may have been overdistented by large child, multiple pregnancy, or hydramnios (excessive fluid in the bag of waters in the uterus). A loaded bowel or full bladder also may cause the condition, as well as emotional disturbances, as the shrinking from pain in those of hysterical temperament. Strains of the lower back at the uterine center, or other trouble in this region may cause it.

It may be that frequent pregnancies have caused an increase in connective tissue in the uterus; this tissue is fibrous and non-contractile, and more than a normal amount of it among the muscle fibers weakens the contractile power of the uterus. Usually this condition calls for no special treatment. If the "bag of waters" has ruptured, then it will be necessary for the physician to handle the case, though for that matter the physician always should be on hand at the onset of definite signs of labor.

The causes mentioned above should be overcome as much as possible, the bowels and bladder being evacuated frequently. When it is evident that labor is not progressing with satisfactory speed it may be hastened somewhat by having the mother walk about. Hot and cold abdominal compresses repeated a few

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times will likely have a good effect, or the mother may sit in a tub or basin of hot water (hot sitz or hot shallow bath). Usually it is best to have the attending physician look after the mother during this protracted stage.

The main disturbance resulting from such protraction is hemorrhage after childbirth, because the uterus does not contract fully enough after delivery to compress the blood-vessels. Sometimes busy-body grandmothers or grannies may want to give cinnamon or ergot, perhaps borax, which to some extent has the effect of increasing the uterine contraction. The use of these never should be permitted, as they may cause rupture of the uterus, or lacerations, in case they do stimulate the uterus to greater contraction. Proper care throughout pregnancy almost always will prevent this condition.

Cramp-like Labor Pains

These are labor pains that are painful and yet too feeble to bring about necessary dilation for delivery. This condition is likely to result in exhaustion of the mother and of the uterus, and hemorrhage may result after delivery. Infection may take place if the mother's condition is not the best, and if the membranes have ruptured some time before pregnancy. The condition may be caused by adhesions of the peritoneum, especially to the uterus, by tumors, excessively large uterus, as in multiple pregnancy or hydramnios, rupture of the membranes, and especially

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is it liable to occur in those of neurotic tendency. This is a condition calling for careful and expert attention.

It will be seen that the causes usually can be avoided, which means that there need not be such a condition to treat in many cases. Twins and other multiple pregnancies cannot be prevented, but most of the other causes are within the control of the mother, if she adopts proper health measures during pregnancy.

Retarded Second Stage

This may result from the causes of delayed first state. An over-distended, fatty, pendulous or muscularly weak abdomen may be a cause, also exhaustion of the mother, and premature rupture of the bag of waters—one service of which is to act as a soft uniform dilator. When this stage is delayed appreciably it is likely to produce exhaustion, injury to the tissues by prolonged pressure, or sepsis infection, or all of these may result. It also may result in a fistula being formed between the vagina and bladder or vagina and rectum. The prolonged pressure may cause serious damage to the child, producing even death, or physical or mental impairment or both.

This is a condition, of course, for the obstetrician, in some cases for the surgeon. But preservation of the mother's health at the highest degree will prevent most of the conditions responsible for the retardation; and as with all other abnormal conditions prevention is greatly to be desired. In this trouble, also, there should be absolutely no meddling by anyone except

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the physician, and no ergot or other uterine stimulant should be permitted.

Abnormal Conditions of the Bony Pelvis

There are many ways in which the bony pelvis may become abnormal, and in such ways as to interfere with the delivery. Some of them can be avoided, but most of them only long before pregnancy is possible —in the growing period; for many are the result of developmental defects. These bony defects include:

Various forms and degrees of pelvic contractions; diseases of the pelvic bones, such as rickets, softening of the pelvic bones and consequent deformity due mainly to a poor diet (a condition called osteomalacia), fractures and bony growths; hardening of the cartilaginous union of some or all of the bones forming the pelvis, thus preventing their normal separation at delivery; defects of the spine, such as forward, backward or lateral curvature, sinking forward of the lowest lumbar vertebra, or a combination of some of these conditions, or displacement of the hip-bones or deformity or absence of one or both of the lower extremities that interfere with normal development of the pelvic bones.

These defects have become established before pregnancy, except osteomalacia. This latter condition is one the causes of which are not definitely known. But it results from the absorption of the calcium, or lime, from the bones and occasionally occurs during pregnancy or lactation. It is thought to be due to

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abnormal ovarian activity or poor diet. If everyone lived properly most of these defects would be prevented, and osteomalacia would not develop during either pregnancy or lactation.

Fortunately, only mild degrees of pelvic deformity usually are found, and these may merely postpone delivery, not prevent it. It is the more severe deformities that totally prevent normal delivery, necessitating instrumental or operative delivery, with greatly increased danger to mother and child. Even the mild degrees may seriously retard childbirth, with more or less serious results to either or both patients. It is because there rather frequently is a bony pelvic condition unfavorably affecting delivery that the pregnant woman should have pelvic measurements taken at some time early in the pregnant period, in order that the physician may know whether or not to expect some interference from such a condition at confinement. Knowing in advance may save the woman much trouble at the critical climax of her pregnancy.

Abnormal Conditions of Soft Structures

There may be adhesions or scar formations, swellings from blood tumors or local dropsy, growths, or rigidity of the external or vulvar portion of the birth canal, which may delay delivery at the very final stage of expulsion. There may be local or general constriction of the vagina, or growths arising from the vaginal walls. The bladder or rectum may protrude into the vagina. The cervix of the uterus may be rigid, as from

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scars of previous laceration or in women who have waited until well advanced in years before having their first child; or there may be cancer of the cervix. Sometimes there are bladder stones; or the uterus may be displaced, either forward or backward; or there may be tumors of the uterus or ovary (cystic ovary).

Proper care during early life will prevent most of these abnormalities, and even after pregnancy has begun proper care and treatment will prevent some of them, or reduce their capacity for interference with delivery if they are known to exist. If they are present at the time of confinement, the necessary treatment to hasten or bring about delivery will need to be given by the obstetrician. Prolapse of uterus, bladder or rectum can sometimes be corrected even after pregnancy has begun; and proper diet will often reduce tumors to a certain degree (except perhaps cystic ovary), and perhaps bladder stones, also. Rarely the uterus itself is abnormal in development, which condition cannot be corrected.

Abnormal Conditions of the Child

Instead of the child being in the most favorable position in the uterus for delivery, it may assume a position that makes it difficult for it to be expelled. Some of these unfavorable positions are with the face lengthwise of the birth canal, with the buttocks presenting, with the child lying crosswise over the outlet, or when two or more parts are presenting, as head and hand, or head, hand and foot.

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The dangers to the mother are tedious labor, with exhaustion, pressure damage, lacerations, rupture of the uterus, and sepsis; and to the child damage by prolonged pressure and instrumentation. Many of these unfavorable positions cannot be prevented, but a few can—by preventing or correcting weakness of the pelvic floor (poor general and local muscular tone); pendulous abdomen, low tone of uterine walls or large soft uterus, large child (sometimes very small child), excess fluid in the uterus, and sometimes tumor of the uterus. Abnormal conditions of the bony pelvis that permit of such abnormal presentations of the child cannot be prevented except earlier in life. Delivery must be by the physician, at least he must be on hand, though Nature will bring about correction of some of these spontaneously.

Abnormal Fetal Development

The cause of abnormal or unusual fetal development is not known, and hence cannot be directly guarded against, except by looking after the health in every way; and even that is no guard against some of these conditions, such as twins and other multiple pregnancies. However, sometimes twins or a larger number of babies are born with as much ease as a single child, especially after the first pregnancy. Hydrocephalus (large head from accumulation of fluid in the brain cavities) cannot be guarded against directly, for its cause is not known. The same may be said of other abnormalities of the child. But, as stated

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earlier, insuring the best of health of both parents, and of the mother during pregnancy probably will do much toward the production of a normal child, and insuring its normal delivery.

It is utterly impossible to determine that any measures *have* prevented abnormalities, for everything might have been normal anyway, in perhaps most cases at least; for nature's efforts always are toward the preservation of the race by the production of comparatively normal children even in the face of great handicaps.

Abnormal Conditions from Accidents or Disease

Except to preserve or improve the health and keep the muscular tone normal, there is not much that can be done to prevent certain abnormal conditions. The cord may prolapse outside the uterus and through the vagina, thus delaying delivery and seriously endangering the life of the child. This may happen when the abdomen is pendulous; but there are many other causes beyond the control of the mother. Very rarely the uterus may be turned partly or completely inside out just before or just after delivery of the after-birth; but this is the result of improperly conducted after-birth delivery by the physician. Partial or complete rupture of the uterus may take place during pregnancy or the following few weeks, especially at labor. Any condition which obstructs labor and weakens the uterus, such as disease or tumor or scar of the uterus; also trying to force labor by ergot

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or instruments, may cause it. It occurs most frequently in the poorly nourished.

Late in pregnancy or at the onset of labor there may be hemorrhages. These are due, among preventable causes, to severe muscular exertion, lifting, falls or blows, kidney disease, acute fever diseases, and toxemia; besides, there are several other non-preventable conditions responsible for it. Conditions which weaken the musculature of the uterus may prevent complete closing of the uterine vessels after delivery, with hemorrhage from the former location of the after-birth at some time within six hours or so after delivery. This condition usually results from lack of proper care by the physician, but is not so apt to happen if the health and general tone of the mother are good. Getting up too soon, and extreme emotions are preventable cause of hemorrhage later. Placenta previa, a condition in which the after-birth is situated very low down in the interior of the uterus, partly or entirely occluding the internal opening of the womb, although not a particularly common occurence will, when it does exist, frequently be the cause of uterine hemorrhage, both before and during labor, and is a serious complication. Hemorrhages may result from other causes also, some of which are preventable by the physician, or occur without apparent cause.

Eclampsia

This is a condition of convulsions occurring during the pregnant state, during labor, or during the weeks

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of recuperation. No convulsions are more severe than those of eclampsia. Women in their first pregnancy or childbirth are affected three times as frequently as those in later pregnancies, and those bearing twins or a larger number at a time are ten times more liable than those bearing a single child. Women having their first child very early or late in the child-bearing period most often have eclampsia.

Toxemia is the cause, apparently, most probably resulting from dietetic errors and wrong living in general, also failure to keep all the eliminative organs functioning normally. Almost always there is some form of kidney insufficiency or disease, causing a state of uremia or uremic poisoning, and always the liver is affected functionally or organically. As the liver converts toxic elements into harmless wastes for elimination, an excess of these elements from any source, especially a toxic colon, causes trouble both in the liver and kidneys, in the latter because the disturbed liver has not been able to change them into non-irritating substances.

Symptoms indicating likelihood of the development of eclampsia include headache, scanty urine, swellings of the face, constant weakness and weariness, nausea, pain in the stomach region, visual defects including blindness, and abnormal findings in the urine (casts and albumin and deficiency of solids), also increased blood pressure.

The attacks somewhat resemble epilepsy—stiff contractions starting in the facial muscles, then vibratory

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contractions, frothing, and, afterward, coma. There is complete loss of consciousness during the attacks.

This is a very serious complication of pregnancy, especially when occurring early in pregnancy or delivery. The greater the number of seizures and the higher the temperature, the greater the danger. The death-rate in this condition is high, as a result of exhaustion, suffocation, hemorrhage into the brain, blood poisoning, or lung congestion. Fewer deaths result when the convulsions do not begin until after labor. From one-half to over three-quarters of the babies die from suffocation when the convulsions occur shortly before or during labor.

The treatment of the patient to prevent this calamity—and which should be instituted immediately in case urinalysis indicates deficient elimination of solids, or other abnormalities, also if any of the above symptoms appear—should consist of complete rest, one or two daily evacuations of the bowel contents by high enemas of hot water with a tablespoonful of salt for each quart; and a diet of considerably diluted unsweetened citrous fruit juices in fairly large amounts and preferably hot. A rectal irrigation may be given once or twice a day, from ten to fifteen gallons of hot salt-water being used. A special return-flow irrigating attachment may be used and is preferable, though good results may be obtained by using the vaginal tip of the ordinary fountain syringe outfit. Since no solid food is to be taken and no real nourishment for a few days, a mild saline laxative is permissible in

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such a critical condition. This treatment may last for two or three days, depending upon the strength and weight of the patient and the clearing up of the abnormal conditions or symptoms. Following this the strict milk diet is the best diet for elimination of toxins and prevention of their further development.

Hot packs over the kidney region, for one hour or more, will be of benefit, though hot body packs should be employed daily or twice daily, depending upon the energy and vitality of the patient. The hot blanket pack is an excellent treatment for increasing the skin activity; but after perspiration has been established it usually should be allowed to continue for only about twenty to thirty minutes, after which there should be gradual unwrapping of the patient with cool sponging of a part at a time, followed by gentle friction, that part to be covered well with dry blanket immediately afterward. If the perspiration is considerable and the patient's vitality high, the pack may be allowed to remain on until the body cools naturally and the perspiration stops of its own accord, after which there should be the same care in removing the patient from the pack. In any case she should then be covered well to maintain warmth of the body. Needless to say, such a patient should be in the care of a thoroughly capable physician or obstetrician, both for prophylactic treatment and certainly where eclampsia actually develops.

In cases of eclampsia where the above measures do not relieve the convulsions the question of the pre-

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mature induction of labor naturally will arise and if the convulsions occur while labor is in progress rapid delivery by artificially dilating the neck of the womb and extracting the baby may have to be resorted to.

It would be well to have the patient take a milk diet, of from three and one-half to five quarts daily, depending upon her desire and condition, for at least several days during convalescence from the attack; and every other aid to quick recovery of health should be employed.

Diabetes

Diabetes is a condition occasionally met with in pregnancy and the later period. It is serious for both mother and child, especially the latter. Where this condition did not exist until during pregnancy it is less serious than when it did exist before. This is one of the causes of an excessive amount of fluid in the uterus. Not over two-thirds of the women with diabetes are able to carry child to full term, and even when the children are born at full term they have low vitality and poor development, many being born dead and about one-half of the remainder dying within a short time. The possibilities for harm to the mother in case the pregnancy continues, and to the child, are so grave that the woman with diabetes should avoid pregnancy. But if she has not done so or has developed diabetes after becoming pregnant she should be in the care of a physician. It is not unlikely that suitable dietetic and other care will minimize the

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dangers, but it is unwise to attempt to care for the condition without medical supervision.

Heart Disease

Many women with organic heart disease bear children and apparently suffer no immediate bad effects. But this condition is so frequently aggravated by the pregnant state that considerable care should be observed when the existence of this abnormal condition is known. One in five women with the complication will suffer abortion or premature labor. The most dangerous stage is at the delivery of the after-birth, when there is placed upon the heart considerable stress due to the change in the circulation.

Medical supervision is highly advisable during pregnancy, and every effort should be made to maintain or increase the strength and tone of the heart-muscle—by proper diet, elimination, rest, avoidance of physical or mental strain, sexual indulgence and emotional stress, etc. During labor the precautions that may prevent aggravation of the heart lesion or lesions will be a matter for the medical attendant. As a woman should recover her circulation equilibrium and her vitality as soon as possible after delivery, it will be inadvisable for her to nurse her child.

Puerperal Infection

This term applies to infection of the mother during the puerperium—while in childbed following labor.

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It is more common in first pregnancies than later ones. It is due to wounding of the birth canal by delivery, especially by lacerations, or bruising by severe pressure.

One cause of infection is undoubtedly clumsy, improper or unnecessary use of the forceps. These instruments are often applied before dilation of the womb has progressed sufficiently. This can frequently be traced to the desire on the part of the practitioner to terminate the labor in a hurry. Lacerations and other injuries of the soft parts of the mother are common when the forceps are not properly applied, as has been previously mentioned. In some cases of protracted labor however, relief by artificial means may be called for as undue and continued pressure on the soft parts will cause bruising and damage to the tissues producing abrasions which act as focal points of infection and consequent blood poisoning. In such cases the child frequently is injured by continued pressure against its head.

By obstetricians, physicians and surgeons, puerperal infection is considered due to entrance of infective germs into the wounds. But my contention is that it is due at least in great part to the condition of the mother's blood and tissues *before* delivery of the child. The physicians give as *contributing* factors those very conditions that are the sole cause—conditions that lower the vitality of the patient, and often injury, and toxemia.

The various types of germs that they find and con-

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sider to be the cause are present because of the very fertile field for them and because of the decaying flesh and other poisons for which they are required as scavengers. Without doubt the toxins that the germs themselves give off in their life processes add to the general systemic toxemia and so intensify the symptoms to more or less extent. But when pre-existing toxemias are avoided or treated, immunity to the germs will be naturally established, and no untoward results from infection need be feared by the woman in normal health.

It also may be said that entrance into the vagina and uterus with unclean instruments, fingers or hands, cloths or other articles, will aggravate any general septic condition which may be already existing in these parts.

Whether or not enough unclean material is implanted on the bruised and lacerated tissues by such means to cause infection, any physician or midwife should make it a rule to be surgically clean in every part of his person, or every instrument or article that is to come into contact with the internal or external parts of the woman in every case of labor. For the bruised and torn parts are closely associated with the general blood-stream and lymphatic system by numerous vessels, and a local infection easily may spread to many tissues or be carried throughout the woman's entire body.

There are many names for the conditions that may be produced by infection at this time—the infection

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of each part affected being named for the part. The vagina alone, the lining, the substance or the outer (peritoneal) covering of the uterus, the ovary, general peritoneum, veins of the leg or legs (milk leg), kidneys, bladder, joints, heart lining (endocardium) or covering (pericardium), or the blood itself may be involved, naturally with symptoms more or less peculiar to the part affected. But the condition, wherever it is found and whatever its symptoms, is the result primarily of a general toxemia and weakening or enervation.

As I have stated earlier and shall state again, the average woman may be said to be toxemic, whether pregnant or not. This condition during pregnancy is very likely to be aggravated; for she is, as a rule, constipated even more severely during pregnancy than at other times; and her diet usually is far in excess of that required for her own nourishment and that of the developing child. Also, many times there is such a reduction of general energy and desire for activity that the woman secures far less physical activity than usual, even though formerly she may have gotten much less than needed for best health. Many women are afraid to bathe freely during pregnancy, and as a result their skin is much less active than normally. There are numerous ways in which the pregnant woman reduces her general health and vigor and adds to her load of toxemia during pregnancy. It is just this high state of systemic poisoning that promotes her susceptibility to infection at this time.

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In regard to symptoms, these usually become noticeable during the second or third day after labor, though they develop slowly and frequently are unsuspected, and vary according to degree and extent of the infection. Among the earliest symptoms are rapid pulse, chills, and increase of temperature to as high as 104 to 105 degrees or even higher, a foul-smelling discharge, and a failure of the uterus to reduce normally. There normally is a somewhat unpleasant odor to the oozing from the vagina, but the malodorous condition of this discharge when there is infection is much more noticeable and much more offensive; and yet there may be serious infection without odor. There may be swelling and, possibly abscess formation at the entrance to the vagina.

The uterus may be sensitive to pressure upon the abdomen, sometimes very tender, it may be softer than normal, and there may be some oozing of blood. There also may be distension of the abdomen, possibly nausea, and abscesses may form in some location within the genital tract or outside (within the pelvis). If there is peritonitis (the cause of most deaths at this time), there are severe abdominal pains and tightness, bloating, vomiting and diarrhea, with prostration.

These various symptoms do not develop in every case, but some of them do when certain parts are involved. If milk leg develops it probably will do so after two weeks and before four weeks following labor, and is preceded by fever, failure of the uterus to reduce, and bleeding. Then perhaps comes a chill

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and the leg pains and swells—usually the left leg, though the condition may involve the right leg or both legs. The leg becomes large, hard and white, the skin appearing stretched. There may remain some abnormality of sensation, size and motion for months.

When the blood is involved by the infection, either by the increase in toxins or by pus, there are severe symptoms of fever and heart disturbance, possibly delirium. If there is inflammation of the bladder there is extreme bladder irritation, with very frequent, almost constant, desire to urinate, accompanied by much local pain, some fever, and cloudy urine. There will be similar symptoms, with pain higher up, when the kidneys and urinary tubes from them to the bladder are affected. The greater the involvement and the earlier in the puerperium these conditions develop the more serious the outlook; but proper and radical treatment instituted at the very onset of the first symptoms usually clear the trouble.

For the prevention of such a serious complication in the puerperium it is necessary to keep the blood-stream as clean as possible all through the period of pregnancy, and especially toward the close of the period. This same care is beneficial in every respect to mother and child alike, and should be given whether or not one has in mind the prevention of infection at childbirth. Every eliminative function must be kept as nearly normal as possible, not by drug or medical treatment, but by natural means.

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These include a comparatively light diet that is laxative in nature and free from an excess of proteins that irritate the kidneys and liver, also of sugars and starches that tend to "clog" the liver and over-work it. Two or three actions of the bowels should be secured daily, and the kidneys should function freely, with comparatively frequent urination. The skin must be kept active by proper skin care, including water, friction and air-baths and proper, non-constricting clothing. An abundance of fresh air is important and should be secured at all times. There should be regular mild exercise, but also sufficient physical and mental relaxation. It would be better if there were no sexual indulgence after the sixth month; intercourse shortly before labor is very likely to lead to this or some other complications.

The treatment of the infection, if it has been allowed to develop, should be begun at the very onset of any symptom indicating abnormal progress; but the treatment will depend somewhat upon the nature of the acute condition. With the onset of symptoms the case should be treated as if it were the most virulent form, for if it is considered and treated as a mild case it may develop into a serious or fatal type, and treatment as for a severe form will not harm the patient in any way even if the infection should be mild.

The vitality of the patient must be conserved, by the avoidance of drugs and forced feeding and of other means used presumably to stimulate the patient's resistance. Any such measures may prove fatal. The

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blood and all involved tissues must be allowed to rid themselves of their poisons, even aided in this by special but natural treatment.

Many cases will become safe and quite quickly restored to normal if no food whatever is taken until the symptoms have subsided sufficiently to indicate that the patient is safe. Then the milk diet, to thoroughly flush the body with fluid and wash out the toxins, will be the best diet to bring the patient back to normal. The patient should take an abundance of water, preferably hot, during the abstinence from food, but if there is considerable fever cool water may be better or preferred.

In addition there should be an abundance of fresh air for the patient, and perfect quiet. Heat to the feet also may be needed. Having the head of the bed elevated eighteen inches or so, usually aids drainage and will prove of distinct benefit in hastening restoration to normal.

Usually this infection is aggravated, if not due considerably, to the retention of part of the placenta or some of the broken tissue from lacerations, and any douche given into the uterine cavity should be used at sufficiently low temperature to bring about a reduction of fever to safety limits. The water should have been boiled, and nothing needs to be added. Two or more quarts of water should be used at each douching, the amount and temperature, also the frequency, being governed by the temperature of the patient. Severe symptoms call for douching every three hours

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or so. Additional relief will be secured by very cold compresses over the lower abdomen and by effective enemas. At the onset of fever a high enema should be given, or perhaps two or three during the course of the first twenty-four hours. Following this there should be at least one enema daily.

Curetting (scraping of the interior of the uterus) has been employed in cases where there is retention of fragments of the placenta, after labor or abortion. If the fragments of placenta can be loosened and brought away by the use of intra-uterine douches it will remove the danger of further infection from putrescent tissue and will avoid injury to the lining of the womb which would offer more raw surface to become infected. But if there already is infection and a sharp instrument is used, this treatment is likely to make the case more serious or even to cause death. The deaths from curetting in puerperal infection have been estimated at from twenty to sixty per cent. A careful physician will see that the uterus is *cleared of all remnants of the placenta before he leaves the patient after labor,* and this, except for the proper care I already have stressed, is the best prevention of future trouble. It may be that occasionally there will be abscess formation which requires incision and drainage; but this should be done only after it has fully formed, in which case there is not likely to be serious trouble resulting.

If milk leg develops, the cause is the same as of any other infections mentioned, and the same treat-

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ment is required. The intra-uterine douches should be given as described above, and heat may be applied to the leg for relief of pain. Wrapping the leg in hot or cold wet linen and this covered with dry flannel and oiled silk or mackintosh fabric possibly with a hot-water bag at the foot, will be an effective treatment. The leg (or legs, if both are affected) should be kept in the horizontal position. No massage should be given so long as the inflammation is active.

After the fever has been normal for some time and the swelling reduced, the patient may leave the bed to be up and around for gradually lengthening periods of time. It may be advisable to support the leg with flannel bandage, or a specially fitted elastic stocking. When the patient can be up, massage may be given to the leg. Cold sitting baths or cold cloths to the leg may be given daily for some time afterward, but there should be good reaction to the cold applications, which should continue for only three to five minutes.

It is encouraging to note that there are fewer accidents and complications of pregnancy and childbirth, and also fewer fatalities, than in the past. This largely is due to better sanitation and better hygienic care during pregnancy, and to a general change for the better in the dietetic habits of many women—as well, no doubt as to a better understanding of the dangers of meddlesome examinations and hastening of delivery by obstetricians and physicians who conduct labor cases. But there is room for vastly more improvement than there has been.

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CHAPTER XII

Clothing for Pregnancy and Lactation

DURING pregnancy, clothing should be selected for healthful rather than fashionable qualities. It should be comfortable, but at the same time it should be so designed that the woman's gradual enlargement will not be revealed more than necessary. So long as the body is kept warm so that the sweat-glands may function normally, and so long as clothes do not constrict, there is no objection to a woman dressing as nearly as possible in the prevailing style.

Constrictions about any part of the body should be avoided at any time, but particularly during pregnancy, and especially should constrictions about the abdomen be avoided at this time. I have mentioned elsewhere that weakened circulation may result in a weak baby. The clothing has effects upon the circulation, and should be adjusted so as to interfere in no wise in this regard.

Avoiding Constriction of the Abdomen

Corsets with heavy, inflexible stays and wasp-like construction no longer are worn; but there are other constrictions. Many women still wear corsets, and, while they are made with provisions for more ample waists, they are capable of giving considerable pressure about this region of the body. There still are

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too many women willing to bind more or less inflexible girdles about them more tightly than their own good permits, definitely to the injury of the developing child. One reason, doubtless the chief reason for this, is to keep the enlargement from showing too prominently. Another reason is to protect the abdominal muscles and walls in general from too much stretching. Neither of these reasons is sufficient to cause the woman to endanger her health and that of her child, and I have shown earlier that nothing of this kind is at all necessary. Proper dieting and physical exercise will take care of this. However, a well-fitted maternity corset affords a very grateful support and helps to relieve the "dragging" sensation that proves so distressing to many women. There is no objection to this garment where it is considered essential. The main consideration is to be comfortable.

It is advisable to have all clothing suspended from the shoulders, rather than from the hips or waist. There should be no waistline, in fact, since there is none on the body itself. It is a monstrosity artistically and hygienically. When the clothing is suspended from the shoulders this does away with the need for belts, girdles and all other constrictions in most cases.

A very excellent type of garment for the pregnant woman is one with girdle effect immediately below the bust, such as was worn by the Greeks. Where this is employed the garments can be effectively draped below this point. Such full garments are far more comfortable, more hygienic and healthful, and may be

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more artistic. There is small opportunity for securing a drapery effect in a skirt which is pulled tightly around the waist.

The most important reason for wearing clothing, and the basic reason, is to provide warmth to the body. Style is the last consideration so far as clothing is concerned—or should be, at least—though with too many it ranks first. Constricting clothing can be found only among "civilized" peoples.

The garters also should be suspended from the shoulders. No encircling garters ever should be worn, least of all by the pregnant woman. All garments should be light in weight, porous, and loose-fitting. This not only prevents constriction, but it reduces the weight of the clothes to hang from the shoulders, and also permits the air to reach the skin at all times.

As to amount of clothing to be worn, much will depend, of course, upon the season of the year. The pregnant woman should especially avoid becoming chilled from exposure to cold and dampness. She should wear sufficient clothing to protect her from temperature changes. But she should wear no more than is necessary to best perform the functions of clothing. In summer and in warm weather whatever the season, the less worn the better.

Proper Underwear

A cushion of air is confined about the body by clothing, preventing the escape of heat that radiates from the body. Dry air conducts heat less effectively

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than does moist air, hence the underclothes should be made of a material that will absorb the perspiration effectively.

If they are not, the heat generated by the body is radiated and lost. Naturally, the same material or type of garments may not be worn during both summer and winter.

The purse often decides what material will be selected for garments, both outer and under garments. During warm weather silk, linen or cotton may be worn.

In cold weather similar fabrics may be used if one is indoors most of the time or may be used by those who are out of the doors for comparatively short periods of time, provided ample outer protection is provided when going out of doors. Lightweight woolen garments may be used in cold weather and usually are preferable, though silk and woolen is an excellent combination of materials, and linen may be worn under pure woolen garments for its moisture-absorbing capacity.

Elimination through most channels is more likely to be satisfactory in summer. In winter both kidneys and skin may function deficiently unless the body is kept warm. Pregnancy places an extra burden on the kidneys, and unless the skin is kept active by ample warmth these organs may suffer considerable damage. One should use no more clothing than necessary for complete warmth, but one should use all that is necessary.

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There are numerous lightweight garments that may be selected for underwear that are not on the order of the usual close-fitting shirts and drawers. These change in type or style occasionally, but something on the order of the present day step-in and a suitable slip will prove satisfactory. Such garments permit the shoulder support for hose, and with present day single piece outer garments there is no need whatever for any constriction at the waistline.

Whatever undergarments are selected, they should be so designed as to allow for the gradual increase in size of the woman's abdominal region, or different garments should be adopted at various stages of pregnancy.

It should hardly be necessary to mention corsets and their harmful influence upon a woman at any time, and particularly during pregnancy. These are not worn as universally as was the case a few years ago.

Let me repeat that the pregnant woman should not wear constricting corsets even if she has worn them before pregnancy. There is a corset waist without steels or whalebone which may be used if something of the sort is considered necessary, but if worn it should be loose fitting. Constriction below the waistline is especially to be avoided.

The Outer Garments

Women usually will select the type of garment that pleases them best, but nothing is better than the neg-

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ligee for a house garment. Kimonos and bathrobes are excellent house garments, and perhaps will be most worn about the house. The type of single piece pajamas that are ample in size to prevent any constrictions should be satisfactory also. Any suitable one piece garment may be worn, and it may be adapted quite closely to style without interferring with the health.

Whatever is worn should be of sufficient size. If it is properly designed, it will conceal much of the woman's condition at the end of pregnancy. It is better that any outer garment be balanced at the top with a fairly large collar, to avoid the appearance of a rounded body, which is likely to result when there is no collar.

Footwear

As pregnancy progresses, there is an increasing strain upon the back due to the gradual increase in weight on the front of the body. For this reason, high heels should not be worn, since they accentuate the strain. The heels should be as nearly as possible eliminated, as the lower the heel, the greater comfort and less stress on the back and pelvis. In addition to increasing the strain, high heels are dangerous for the reason that they may be responsible for a fall which might lead to serious consequences. The heel of the shoe should be not only low, but as broad as the shoe upper. This type of heel makes less likely any turning of the ankles, which also may lead to a

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fall and undesirable results. The sandal or house-slipper is a very excellent footwear for most the time, especially indoors. The leather of shoes should be soft and yielding, and the toe of the shoe should be broad enough so that there is no crowding of the toes. In other words, every garment should be selected for comfort and for the most nearly normal functioning of all parts of the body.

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CHAPTER XIII

Preparation for Childbirth

IT is very important that the expectant mother know what to do at the imminent approach of labor, and what to have in readiness when the child is delivered.

Early in pregnancy the physician who will handle the case, or the midwife, should be selected. At the approach of labor or expected labor, this physician or midwife should be notified. If none has been engaged before, it is extremely important that no time be lost in securing the one to handle the case.

Having arranged for this service, an attendant gets in readiness the articles that will be required. The following list represents the minimum of supplies required, and will serve as a guide if more elaborate preparations are required.

Tincture of green soap, 4 ounces.
Saturated solution of boracic acid, 2 pints.
Seven or eight gallons each of hot and cold sterilized water in sterile containers.
A new large, coarse, sterile sponge.
A fountain syringe (sterilized by boiling).
A hot-water bottle.
An agate bedpan, new or thoroughly cleaned, and sterilized.

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Two or three agate basins of two-quart capacity.
Soft rubber or glass catheter.
Two new hand-brushes.
One pound of absorbent cotton.
Sterile olive oil or vaseline, covered or stoppered.
One dozen freshly laundered towels.
One half dozen clean sheets.
A large rubber cloth or obstetric blanket (2 yards by 1½ yards).
A small rubber cloth (1 yard square).
Two or three pieces of laundered unbleached muslin (1½ yards by ½ yard) for abdominal binder.
Cheese-cloth or gauze (20 yards).
One dozen pieces of cheese-cloth, 18 inches square for wash-cloths, or plenty of old clean linen, sterilized by baking in oven.
Large and small safety pins, two dozen each, or same number of medium size.
Pair of scissors.
A fine soft sponge.
Talcum powder.
Castile soap.
Several changes of baby's clothes.
A package of sterile tape $\frac{1}{10}$ inch wide, or one yard of strong linen bobbin, for tying the umbilical cord.
Package of sterile navel-cord dressing.
Soft woolen blanket for the baby.
Bath thermometer.

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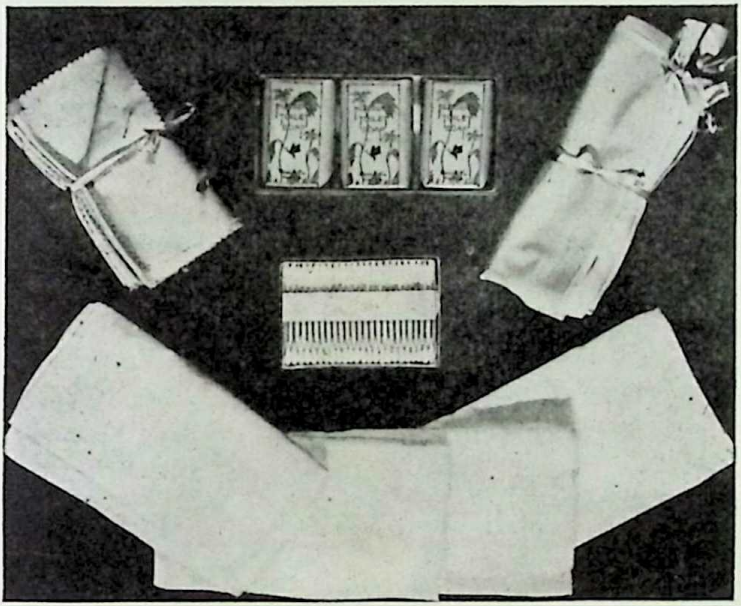
Infant bathtub of suitable shape, size and material.
Diapers, four dozen.

The cheese-cloth and cotton are material for two or three large absorbent pads and several small occlusive pads. The large pad consists of several layers of cotton, two or three feet square and two to four inches thick, covered by cheese-cloth and loosely quilted. The occlusive bandages are made by en-



Here are shown some articles necessary in the toilet of the new baby, including a change of diapers, soft flannel binders to be worn about the abdomen under the shirt, rubber sheet, pinning blanket.

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closing two thicknesses of absorbent cotton, seven or eight inches long and four or five inches wide, in one-fourth yard of cheese-cloth or gauze so folded as to make a pad sixteen or eighteen inches long and four or five inches wide, the edges being stitched. All pads are put up in wrapping paper, baked, and kept sterile until required.

Pre-Delivery Bathing

At the first indication of the approach of labor the attending physician is summoned. He will ascertain at once the progress of labor and the position of the child. If labor is not imminent he probably will advise the thoroughly cleansing enema. The child in passing through the pelvis should have the call upon all the space available, and there should be no accumulation of bowel waste in the rectum or lower bowel. Often the high colonic irrigation is recommended and preferred in place of the simple enema, particularly if the bowels have been sluggish. The physician will advise how to give such a colonic irrigation, but the best position is with the patient on the knees with her face to the floor, this position allowing the water to reach most of the colon. If the bowels have been functioning regularly, a simple enema of from one to two pints of barely warm water will be sufficient. This may contain a rounded teaspoon of salt to each pint.

If there is ample time, a warm sponge bath should be taken, with soap. The shallow tub-bath may be

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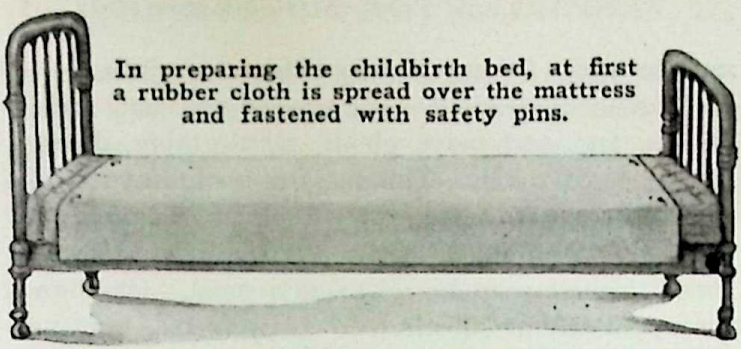
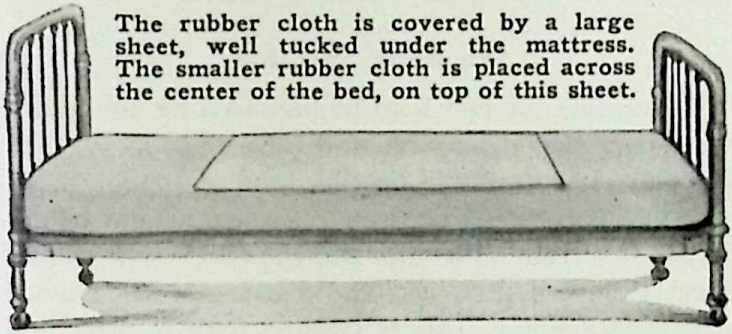
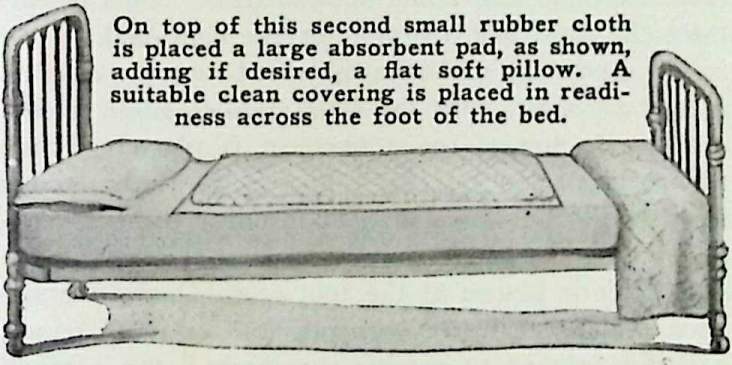


In preparing the childbirth bed, at first a rubber cloth is spread over the mattress and fastened with safety pins.



The rubber cloth is covered by a large sheet, well tucked under the mattress. The smaller rubber cloth is placed across the center of the bed, on top of this sheet.



On top of this second small rubber cloth is placed a large absorbent pad, as shown, adding if desired, a flat soft pillow. A suitable clean covering is placed in readiness across the foot of the bed.

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used instead. In any case the external genitals should be thoroughly cleansed. The woman may now remain on her feet and move about, comfortably dressed, resting occasionally. This moving about favors dilation. If there is to be a delay, light nourishment may be taken. Nothing is better than oranges. Two or three of these may be taken at a meal. Or canned pineapple may be substituted. If preferred, light vegetables or milk may be taken.

Preparing the Bed

Meanwhile the bed is to be prepared by the nurse. The room should be large and warm, yet airy. The bed should be narrow if possible, and reasonably high. The mattress should be firm. The bed should be approachable from both sides and the foot. The rubber sheet is placed first over the mattress and fastened with safety pins. This is covered with a sheet and tucked around and under the mattress. This constitutes the fixed bed-covering for the child-bed.

The temporary and adjustable bed-covering consists of a draw-sheet, with the small rubber sheet underneath. On top of the draw-sheet is placed a large absorbent pad, a soft flat pillow at the head, and a sheet or old but clean blanket to cover the bed completes the child-bed.

A chair is placed at the foot of the bed. On the floor, which is covered with oil cloth or thick paper, a pail is placed to receive the waste. On a small table within easy reach are placed vaseline, one-half

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dozen towels, a large sponge, a pair of sterile scissors, sterile cord tape and a basin filled with mild boric-acid solution, and containing several pledgets of cotton.

Everything thus in readiness, the patient, nurse and physician should be calm, yet cheerful. There is no need for agitation nor for gloom.

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CHAPTER XIV

The Childbirth

NINE months is considered the time from conception to labor. Forty weeks is more accurate. There are three stages to labor: First stage, dilation of the neck of the uterus, with bursting of bag of waters, with their escape; second stage, the birth of the baby; third stage, the delivery of the placenta or afterbirth.

When it appears to the physician that dilation is well under way, and the bag of waters will soon rupture, the patient should be put to bed. The bag of waters has served its purpose when it has dilated the birth-canal sufficiently for the passage of the child, but it should not be ruptured prematurely, as this complicates the delivery.

The first stage of labor usually begins with more or less sharp pains radiating in the abdomen, accompanied by a dull pain in the small of the back and a drawing sensation in the thighs. At first they are short and return at long intervals, but they gradually become longer and more severe and closer together. "Good pains" are signs of the vigorous contraction of the uterus, with further dilation of its cervix, lasting from one-half minute to a minute.

After an average of six hours or so, these pains come a few minutes apart and dilation increases with

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progressing rapidity. The first stage usually is terminated with the escape of the bag of water fluid and the presenting part of the fetus entering the outer orifice. From this time on until the birth of the placenta the physician or midwife will be at the bedside constantly, as it usually is a matter of less than one hour before labor is completely terminated.

The Progress of Labor

The fetus may assume any position in the uterus. Whatever position it assumes at delivery it usually has had for the last several weeks. Since the fetus is floating in liquid and since its head is its heaviest part, the position it usually assumes is head downward. So the head is the part normally presented in labor. With increased contractions of the uterus during labor pains the head is forced downward, out of the uterus into the bone-structure of the birth-canal (lined by the vagina) toward the final outlet.

The descent of the head in the pelvis produces pressure upon the rectum, causing a desire to defecate. The abdominal muscles now begin to contract and help the progression of labor. The oncoming head reaches the perineum, the band of dense tissue between the rectum and vulva. The pressure upon this causes the head to turn slowly upward, and the succeeding strong pains force the head into the vulva. With another pain or two the perineum slips backward over the face and the head is born. Within less than a minute, usually, the birth of the fetus is completed.

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The umbilical cord, which has connected mother and babe throughout pregnancy still unites the two, but with the birth the child breathes and the pulsation in the cord ceases. This is now tied and cut, thus ending the second stage of labor.

After a rest of ten to thirty minutes the uterus begins contracting again, and the placenta or after-birth after a few contractions is expelled with its membranes. This terminates the third stage, and completes labor.

Even in normal conditions labor is somewhat fatiguing, and after its termination the woman usually sinks into a deep slumber for a few hours, awaking refreshed.

Benefit of Deep Breathing

Since the abdominal muscles are called into action during the first and second stages of labor, the woman can do considerable to help in the dilation preparatory to actual delivery, by taking a deep breath and bearing down at each pain. After bearing down forcefully the air is exhaled suddenly through the open mouth. This deep breathing and pressure are continued until the pain ceases, after which there is relaxation, with the procedure repeated with each pain. Sometimes it is of benefit to have a towel or strong sheet secured around the foot of the bed for the woman to pull on, or it may be extended only around the feet.

Often during the descent of the fetal head there is an urgent desire to empty the bowels. The woman should remain in bed, as precipitant labor occasionally

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results when a woman arises to go to the toilet close to delivery time. What fecal matter may appear can be removed with pledgets of cotton.

Preventing Lacerations

When the perineum is insufficiently elastic, or when the child is of considerable size, a laceration or tear of the perineum very frequently occurs. This slight tear may be prevented, and all serious tears usually can be prevented, especially if there is expert help. The usual causes of perineal tears are inelastic tissues, too rapid advance of the fetal head for maximum dilation to take place, or instrumental delivery.

Bearing down by the woman during labor pains is very beneficial until the last few pains. At this time if she will refrain from holding her breath and bearing down the advance of the head will be less rapid. She should open her mouth and breathe through this rather than bear down as advised above.

In addition, the head is restrained from advancing too rapidly by one hand of the physician, while the other hand protects the perineum and at the same time pushes the head into the direction of the outlet, or upward toward the pubic bones.

After the Baby's Birth

It is a practice with obstetricians to place the newborn babe on its right side. This is supposed to favor closing of an opening in the heart necessary for fetal

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circulation but not for post-natal life. Failure of this opening to close causes what is called a blue baby, in which the blood is never completely arterial but all blood is mixed arterial and venous. When the baby is laid down, its face is usually turned from the mother so that breathing is not endangered. Upon cessation of pulsation in the cord, this is tied two inches or so from the baby's abdomen and cut beyond this ligature. The baby is wrapped in a warm blanket and put in its crib or basket to receive further attention later.

After the baby's birth, the attention of the physician is given to the uterus and the birth of the placenta. Usually the uterus is compressed through the abdomen and kneaded so as to secure vigorous uterine contractions, which prevent hemorrhage. Birth pains will begin again after a half hour or so. By these the placenta is expelled, and labor is completed.

The woman's external genitals are now cleansed with sterile water and covered with the occlusive bandage. The temporary bed is removed, the large absorbent pad is placed over the external genitals and the binder is adjusted to the abdomen.

Common Irregularities of Labor

Most labors take a natural course, but in some instances labor will be irregular. The most common and most important irregularity is a *protracted labor* resulting from deficient uterine contractions. Instead of the usual six to eighteen hour duration, prolonged

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labors may extend to twenty-four or forty-eight hours, with surgical interference sometimes required.

Young women giving birth to their first child are most likely to have protracted labor. It also commonly occurs in women who have had rapidly successive pregnancies, causing a weakening of the uterus musculature. Some cases, however, seem to be due mainly to nervous excitement. If a woman lives healthfully before and especially during pregnancy, she is not likely to have this irregularity of labor. If it is found that contractions are weak, the woman should rest and be assured there is no occasion for anxiety. A forceps delivery may prove to be required.

Pelvic Deformities

A disproportion between the dimensions of the birth canal and the child's head sometimes prolongs labor. Sometimes the canal is too narrow, and at other times the head is too large. Usually these pelvic deformities are due to some disease of the pelvic bones or hip-joint (rickets and osteomalacia). Mineral starvation during pregnancy may cause an extreme degree of pelvic deformity. The management of these cases will rest entirely with the physician.

Retained Placenta

Sometimes the uterus seems to be more or less exhausted after the birth of the child and does not contract with sufficient vigor to expel the placenta. Most of these cases can be handled properly by the phy-

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sician grasping the uterus through the abdominal wall and kneading it rhythmically while giving gentle traction upon the cord.

In a limited number of cases, the placenta is so closely attached to the uterus that this method will not bring about its expulsion and the physician may need to introduce his hand into the uterine cavity to sever the adhesions. A retained membrane from the placenta is a frequent cause of infection following childbirth, provided the woman is in a toxemic condition.

Whenever the membrane is retained it undergoes degenerative changes within twenty-four hours or so, and there may be absorption of the products of this degeneration with more or less obvious symptoms of infection.

With this in mind, obstetricians take care to observe the after-birth after its expulsion to be sure that all of the placenta and all of its membranes have been expelled.

Normally after the birth of the placenta the uterus contracts into a hard mass. This prevents hemorrhages. In some cases the muscle remains flaccid, and the woman may lose large quantities of blood. This can be prevented by stimulating the uterus to contract by compression through the abdominal wall as above mentioned, also by cold applications over the abdomen.

Should all of these procedures prove ineffective it may be necessary for the physician to pack the uterus

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with gauze. The woman who has lived properly during pregnancy is not likely to have this condition develop.

Care of the Child in Normal Birth

If the new-born child does not breathe immediately the physician resorts to one or more procedures to start the breath of life.

If there should be no physician or midwife present when the infant is born, an effort to induce breathing may be made by someone attending the mother. This attempt may take the form of slapping the infant's back, and sprinkling the chest with cold water, or of holding the child by the ankles and giving it a few sharp spanks on its buttocks, meanwhile blowing into its open mouth.

After the birth of the placenta the physician gives attention to the baby. If necessary the cord is retied. The child is then examined to determine its physical condition and possible need for any immediate treatment. It is now a universal practice to apply a drop of one per cent. silver nitrate solution in each of the baby's eyes to prevent possible infection from venereal disease. This solution has no other effect than to destroy any germs that may be present in the eyes, which might possibly cause blindness.

The nurse usually cleanses the baby's body with a soft sponge dipped in warm olive oil. The physician then (or before) wraps the cord in sterile gauze and the abdominal binder, diaper and outer clothing are adjusted to the baby, who is then placed to rest. In

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many cases the new-born babe is annointed with oil, wrapped in a warm blanket and allowed to remain for some hours before being washed. This is for the purpose of softening the grease (vernix caseosa) with which the bodies of most new-born babies are covered, in this way making it easier to be removed than if this were attempted immediately after the birth. The mother at this time also is ready for her rest. As has been noted, normally there is a desire for sleep, even when the delivery has been quite normal. Upon awaking the mother will feel refreshed, and the baby is then put to the breast. The first milk secreted is somewhat different in composition from the real milk which does not form until about the third day after parturition. It is a substance which has more or less of a laxative effect on the infant and called colostrum.

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CHAPTER XV

The Lying-In Period

THERE need be no change in the diet for the lying-in and nursing period from that for pregnancy itself, if the diet has been proper during pregnancy. The main foods required are fruits, vegetables, milk and whole grain cereals, with some of the nitrogenous foods (eggs, fish, meat, peas, beans and cottage cheese) taken regularly but in moderation. With a suitable diet during pregnancy there will be no abnormal cravings.

The mother who has been properly fed will have a normal appetite, and this may guide her in the selection of food and determining the quantity required. She will not be likely to overeat, nor select a seriously unbalanced ration. Indigestion should be guarded against by the selection of easily digested foods in simple variety at each meal, and thorough mastication should be practiced.

Effects of Diet During Lying-In Period

If the weight is subnormal, enough food may be taken to bring about a slow gain toward normal. Often, after childbirth, women gain weight, who may not have been able to gain before. If the weight is above normal, care must be taken not to increase it, and it would be better if the diet would be sufficiently

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reduced in quantity as to allow a slow loss in weight. Always care must be taken that foods rich in the protective minerals and vitamins be provided.

Some infants seem especially susceptible to intestinal irritation from fruit consumed by the mother. In such a case the mother should use small amounts of fruit to accustom the baby to them through the milk. Certain articles of other foods, while wholesome in themselves and causing no trouble in the mother, may cause disturbances in the child. Among these are strawberries, pears, cabbage, onions, radishes, and others. It may be necessary to experiment by omitting first one food then another to find the food or foods which are causing trouble.

At first in the "lying-in" period the diet should be light and varied from day to day, also of such nature as to aid in the formation of milk. The foods mentioned above as those most required will have this effect. The woman should drink freely of water, as this makes it possible for food elements to be absorbed and converted into milk, while at the same time keeping down the mother's toxemia.

The Milk Diet

There is no one article of food that will be better for the mother and the babe than milk. The mother should have considerable quantities of milk as it is excellent for her digestion and does not produce toxemia, but on the other hand alkalinizes her system and provides elements required by her and the baby.

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It is not necessary for all women to take the strict milk diet, but for the woman who is under-nourished and underweight this diet, with an orange or two daily, would be the best to rebuild her while going through the period of nursing, which often is decidedly weakening to the woman below normal.

From four and a half to five and a half quarts of milk daily, with oranges or orange juice, perhaps with moderate amounts of lemon juice, will build the mother's health while at the same time providing ample milk for the baby.

If the mother is overweight she also can take fair quantities of milk in a diet otherwise consisting mainly of green vegetables, fresh fruits and whole grain cereals. Whether or not the strict milk diet is taken in practically all cases, it would be well to have at least one meal of the day to consist of fruit and milk.

The woman who is vitally interested in preserving or rebuilding her own health and in building a strong healthy child should make a careful study of diet so as to insure providing herself with every element required for highest vitality, strength and energy. A diet that will be best for her, in quality and quantity, will be best for her nursing baby.

Sleep and Relaxation

The mother who is nursing her baby often requires a seemingly unusual amount of sleep. Whatever the requirement seems to be this should be provided for. Many women prevent recovery of their own health

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and through this secure an unfavorable effect upon the nursing child by failure to obtain not only enough sleep, but sufficient relaxation during the day. The mother who must care for several other children may find it difficult to rest adequately. But every advantage should be taken to retire early enough to get sufficient sleep at night, and to have at least one reclining period during the day, also an afternoon nap.

Many women cheat themselves out of adequate sleep by failure to train their babies from the start in regular feeding habits so adjusted that there is little or no night-feeding required. A baby can very quickly be broken into the habit of nursing at ten o'clock at night and sleeping soundly until the next nursing time at six in the morning.

As it sometimes happens that a baby cannot be so trained, then it would be to the mother's advantage to supplement her breast feeding by a night feeding of a good milk modification such as described in "How to Raise the Baby" a book issued by the publishers of the present work.

Breast Care

Breast care should begin during pregnancy. If the breasts have been cared for properly, there will be less tendency to injury of the skin covering the nipples due to the suckling of the child.

If tenderness does develop it usually can be overcome by general rubbing of the breasts and nipples with cocoa butter or olive oil.

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The breasts not infrequently become distended with milk shortly after delivery and become hard and painful. The adjustment of the nursing periods of the child and of its requirement for milk usually will correct this breast condition within a short time. If it does not, then the breast pump may be used. The application of hot and cold cloths over the breasts may be all that is required to give relief of the distended breasts.

If there is an insufficient supply of milk, much can be done to increase this by increasing quantity of milk consumed by the mother. A very excellent aid to the glands however, is milking the breasts dry. Many women have enough milk at first, but because the child does not use it all the supply gradually diminishes until before weaning there is an insufficient amount produced. In this case also milking of the breasts is excellent. That is, if the breasts are "stripped"—milked of all their content of milk—much as the farmer strips the milch cows' udders, the gland will produce increasing amounts of milk until (usually) ample will be provided for the child's complete nourishment. The duration of the milk producing period will be lengthened by this procedure also.

This indicates, however, that for the woman who has an excess quantity of milk it would be well not to milk the breasts, so that there will be a gradual diminishing of quantity.

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CHAPTER XVI

Terminating the Lying-In Period

THE former practice among physicians and obstetricians has been to keep the recently delivered woman in bed from ten to fourteen days following delivery. This prolonged period in bed should not be necessary except when the woman is very delicate or has been badly torn. Lacerations require considerable rest, as do any equally serious injuries.

If pregnancy has been passed through and terminated normally, it should not be such an ordeal for most women that prolonged bed rest is necessary.

It was stated previously that many women of the savage races are up and performing their usual duties immediately after childbirth. The Indians of the American Southwest have been known to walk half a mile to a creek immediately after childbirth to wash themselves and their babies in the cold water and to return at once to her camp and her work, as if it were a daily affair. Some of the very strong immigrant women from the European countries not infrequently do such work as a day's washing a day or so after childbirth. More advanced women can do likewise.

Civilization Not Necessarily Weakening

Civilized life in itself is not so exhausting that women should require a prolonged stay in bed after

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childbirth through weakness and delicate health. Often it is merely the prolonged lying-in period following maternity that results in the weakness of the civilized mother.

While childbirth is in some measure a strenuous experience, the strong healthy woman who comes through this period normally should have no extreme debility such as too often is experienced for several weeks following confinement. There should be merely a temporary exhaustion such as follows any strenuous physical exertion. No matter how strong and healthy an individual, if he or she remains in bed inactive for two weeks there will be very great reduction of strength and energy.

The Reduction of the Uterus

Recovering from childbirth is not an illness, as it *usually* seems to be considered by some persons. The period of convalescence is a period during which the generative organs are being restored to their pre-pregnant condition.

During this time the uterus normally contracts to a small size, weighing two ounces, from the full-term pregnant size, of eight inches in length, five in breadth and four in thickness. During this reducing process, called *involution,* the muscle fibres of the uterus shrivel up, and fat is absorbed. Within six weeks the organ normally reduces to its former size.

There is a very close relationship between the uterus and the breasts, which accounts for the influence of

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breast nursing upon contraction of the uterus. Women who do not nurse their babies are less likely to have complete involution of the uterus, or such reducing process will be more slowly brought about. The close connection between uterus and breasts is indicated by an occasional abortion when pregnancy takes place during breast nursing of an earlier child, the extreme contractions of the uterus causing this organ to empty itself.

Failure of Uterus to Reduce

Often the uterus does not reduce to its pre-pregnant size. This is called *subinvolution*. When this condition exists there usually is occasional bleeding from the uterus. Conditions causing subinvolution are retention of some of the placenta or its membranes, uterine displacements, adhesions, too early resumption of sexual intercourse, avoidance of breast nursing, inflammatory conditions and uterine fibroid tumors. A healthy woman will have none of these causes, hence should escape subinvolution. Premature rising from the childbirth is said to be a cause in some cases, but it is a cause only when there has been failure to observe rules of health during pregnancy. In order to bring about normal involution any of these causes should be avoided or, if operative, properly treated.

The Lochia

By the lochia is meant the flow or oozing from the uterus and vagina during the lying-in period. Owing

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to the raw surface of the uterine lining there is a gradual loss of blood. There is also a discharge from the cervix and vagina due to repair of the more or less mangled tissues.

While this flow may be pronounced for the first few days it gradually diminishes, until within two weeks all traces of it usually have disappeared. Immediately after delivery the lochia consists completely of blood. The discharge becomes more and more mixed with mucous and serum during the next five or six days. Within about two days later the discharge takes on a whitish color and consists of pus, which is of a healthful and not of an infectious nature, having no offensive odor.

Sometimes all of the blood does not escape from the uterus and vagina, but collects in one of these locations, appearing in smaller amounts than normal from time to time. These clots should be washed away from the external orifice. No douching should be attempted.

Normally it requires about six weeks for the uterine repair process to be completed. Nothing is to be gained by lying in bed during the whole of this time. Prolonged bed rest reduces all functions and often seems to be the chief reason for failure of the mother to provide sufficient milk for the nourishment of her child.

Need for Cleanliness

It is important that the new mother be scrupulously clean. Not only should her body be bathed daily, but

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her external genitals should be bathed with sterile water several times daily, the hands of the nurse being previously sterilized.

If there is difficulty in urinating, hot poultices over the bladder area usually will remedy the condition. The physician will determine if urination is sufficiently retarded and urine has so accumulated as to call for the use of the catheter.

Constipation usually will be avoided by proper living during pregnancy and proper diet in the lying-in period, but the enema may be required the second day after delivery and perhaps daily for three or four days.

Sitting-Up In Bed

It is quite customary for the new mother to be told that she can sit up in bed some days before she is allowed to get out of bed. It is much better that a woman get out of bed and stand up than to sit in the usual cramped position required when sitting up in bed.

The sitting-up position produces a crowding of the abdomen and of the enlarged uterus and has a detrimental effect upon this organ. If a woman is unable to rise to her feet it would be better to remain lying in bed or perhaps sitting erect on the side of the bed for a short time, with the abdomen held somewhat in.

Usually no harm will be done by standing for a short time at the side of the bed, with body erect and abdomen held in instead of allowed to sag or protrude.

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Slumping over is inadvisable whether propped up in bed or sitting in a chair. After arising, in order to maintain a good posture while seated it is a good plan to have a small pillow tied to the chair back, where it will fit the small of the back. This will help support the body in good posture by preserving the natural lumbar curve of the spine.

Getting Up After Confinement

Many physicians and obstetricians now advise the lying-in woman to assume a sitting position for emptying the bladder and bowels, from the beginning of this lying-in period. Such a position aids in securing better drainage from the uterus, which is very important at this time.

There are many women, however, who are not sufficiently strong to attend to the calls of Nature in this position. It should be left to the physician to decide this question.

The length of time required for a woman to remain in bed will depend much upon her exercise and general health habits during pregnancy. If the suggestions given in this book have been followed during pregnancy the woman should be so sufficiently vigorous that she can get up early and still retain her good health.

It usually is not advisable for any woman to get up the first day. A hemorrhage often results from this premature exertion and change in posture. In fact, overexertion at any time during the lochial flow

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may result in unnecessary hemorrhage, and particularly if there have been lacerations.

By the third or fourth day, however, any normally vigorous woman who has had a normal pregnancy and childbirth should be able to be up and about in moderation. Those who are delicate may need to double this length of time in bed, though in these cases it would be better to begin bed exercises to hasten recuperation. Such exercises are fully described in the next chapter.

A woman's general feeling usually may be relied upon to determine when she will be ready to get up. Often there will be a definite muscle hunger that will call for early arising and activity, but in other instances the woman will feel the need of further rest. In any instance only little exertion should be taken at first, and slow progression for safety's sake.

The Abdominal Bandage

Numbers of civilized women wear an abdominal bandage after delivery. There are numerous instances where the woman is weak and the musculature soft and undeveloped where a well applied abdominal support is of considerable benefit during the lying-in period and when first getting up. But a woman whose muscular system is properly developed should have no need for this support. Still, there probably would be no unfavorable results in any case from wearing such a bandage, provided it was snugly but not tightly applied. It often gives a feeling of much support and

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makes the woman feel better protected even when protection is not really required. It aids in maintaining better posture in many instances.

The ligaments supporting the uterus have been greatly stretched and after the uterus has been emptied they hang loosely suspended and are incapable of giving support. This condition, plus the heavy uterus the ligaments are called upon to support, makes more likely uterine displacements that may give trouble when general tissue tone is subnormal. For this reason the abdominal support is to be recommended for the woman below normal physically. The ligaments soon resume their normal length and tone and their ability to support the uterus.

Much care must be observed not to have the bandage too tight. It is possible that undue pressure produced by an over-tight bandage will result in displacement of the uterus, by the direct pressure or as an effect of crowding the abdominal contents.

It is very beneficial for women below full vigor to secure abdominal massage after the uterus has reduced some in size. Such massage tends to tone up the previously stretched abdominal wall of muscle and also has a favorable effect upon the internal structures. The massage may be given once or twice a day. It is not necessary to have a trained masseuse for this massage, as it can be given by the woman herself through simple upward pressure with a rotary stroke. A very good abdominal exercise of benefit at this time is raising the hips while lying face down. Another is

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merely raising head and shoulders to tighten up the abdominal muscles.

The Return of the Menstrual Flow

With the re-establishment of ovulation the menstrual function again becomes active. This in itself tends to restore the normal balance of the endocrine (ductless) glands, and tends also to reduce any obesity due to this lack of functioning power of the ovaries during pregnancy and a varying length of time following delivery.

Breast nursing of the infant however usually delays re-establishment of menstruation, because of the contracting effect produced upon the uterus through influence upon the breast. Those women who do not breast-nurse their babies may have a return of menstruation within six or eight weeks after pregnancy. Otherwise it may be delayed several months or up to a year.

Resumption of ordinary physical activities tends to hasten return of menstruation. Usually a woman will not need to be concerned about when this will return. If she lives normally and retains her health at a high standard she will notice no inconvenience or abnormality of the function, whatever the time at which it may return.

Usually menstruation is painless for some months after childbirth even when it had been painful before. This change results from the pronounced dilation of the cervix of the uterus at childbirth, menstruation

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pains usually being due to a rigid condition of the cervix that delays escape of the menstrual flow.

The Return To Normal Weight

It is to be expected that there will be decided loss in weight after childbirth. There are the child and the after-birth and loss of blood and the bag of waters, these weighing approximately some fifteen to eighteen pounds. In addition to this loss, there is a further loss to some extent of water from the tissues that have become more or less dropsical. One may expect to lose approximately one twelfth of the weight at full-term pregnancy. Naturally the heavy woman will lose more than the slender one; and there may be a further loss of weight in those mothers whose babies are breast fed.

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CHAPTER XVII

Recuperative Exercises Following Confinement

I HAVE emphasized that it is unnecessary that a woman's health and strength be reduced after childbirth. Such a natural function should leave a woman's health as vigorous as it was before. It is very important that her health and vigor be conserved and if possible increased following childbirth, because of the more or less drain upon energy due to nursing and the child care even if there are no household duties to perform. Activity is the best single means of increasing strength and hastening recuperation.

As soon as strength and energy permit, the woman should be up and about, as previously stated. But before she should be up it will be possible for her to begin to hasten her recuperation by moderate exercise. Even lacerations of a slight or moderate degree should not prevent the taking of exercises for preventing loss of strength, provided the exercises place no strain upon injured or tender parts.

During pregnancy the exercises described and illustrated elsewhere in these pages will be of benefit in maintaining tone and strength of tissues while the abdomen is enlarging. But there are other exercises of benefit while the organs are reducing and the body is returning to its pre-pregnant shape. It is quite important that the abdominal muscles, which have been con-

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siderably stretched by pregnancy, be exercised to aid them to recover former shapes and functions. Hence the recently delivered woman should soon begin abdominal exercises.

These must be very mild at first, gradually increasing as the woman's strength increases. A very excellent exercise for beginning the abdominal strengthening is raising and lowering of the abdominal walls while reclining on the back. This exercise not only helps recovery of the muscle shape and tone, but it and the following exercises are excellent for overcoming constipation and for improving circulation throughout the abdomen and pelvis.

Milk Supply Affected by Exercise

Various movements of the arms and shoulders will improve the circulation through the breasts and will help increase milk secretion when this is deficient. Some of the exercises described later will be of value in this respect. Only a few movements should be taken at first to prevent fatigue, and care must be taken not to make them too vigorous.

A requirement for delivery of the child is some degree of softening of the ligaments holding the large pelvic bones together. Following childbirth the tone and strength of the joints may be increased by exercises that aid the circulation through these parts, the thighs and lower extremities. If the exercises are taken too vigorously the joints may be somewhat displaced, owing to the relaxation of the ligaments.

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In every normal case there will be rapid recovery after such a natural experience as pregnancy and childbirth. Even where there has not been a high degree of health before pregnancy, if the suggestions given in this book have been followed the woman's health should be increased during pregnancy and further increased following childbirth. The exercises given in this chapter are carefully selected to encourage quick return to normal.

Complete rest should be taken the first day, and for two or three days if there is pronounced weakness or if there has been any injury or severe hemorrhage. Whatever exercises are begun, caution must be used to prevent straining or injuring any weak or tender parts. But in practically all these cases the lighter exercise can be taken for a few movements each without danger.

Instead of having one fairly extended exercise period daily, it would be better to have two or three periods with a very little exercise at each period. Two or three movements may be attempted early on the second, third or fourth day, and repeated or substituted by two or three other moves in the evening and progression made daily from then on.

Use Passive Movements First

Unless a woman is very vigorous and has had an uncomplicated pregnancy and easy childbirth it would be better that the beginning exercises be given by a nurse or attendant. The nurse may take an extremity at a

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time and move it according to the explanation accompanying the exercises, the patient lying completely passive, neither helping nor resisting during the movements. After a day or two she may slightly resist the movements made by the nurse; or if she is very weak she may merely assist the nurse in making the movements. Within a couple of days it usually will be possible for the movements to be taken by the woman herself, after which she can increase the energy put into the movements, the number of movements taken and the number of repetitions of each movement.

These exercises should be taken daily or twice daily for the period of involution of the uterus, which is around six weeks. The parts will be gradually strengthened during this time naturally, but this will be furthered by the exercises so that there should be no lingering weakness of the pelvic structures.

I must caution again against too vigorous exercising at first, too prolonged an exercise period, too many repetitions of movements, and the taking of any exercises that will be likely to interfere with the repair of any existing lacerations.

The best beginning exercises are the following:

1. Lying on one side with the upper arm forward and the leg backward, continuously change positions of these by swinging them across the body, making the movement sufficiently complete to rotate the spine on each swing. For the first two or three exercise periods this movement should be less complete, repeating only a few times, and without vigor.

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2. Raise the knees one at a time (later both together) to the chest then extending the feet upward somewhat separated.

3. Slide one heel up to the hip with pressure upon the mattress, then sliding it down until the leg is straight.

4. Resting one foot on the mattress with the heel at the hip, moderately raise the hips; later with both heels touching the hips, raise the hips.

5. Lying on the back fully extended, press downward with the hips.

6. Raise the head while lying on the back.

7. Lie on the back with the heels at the hips, press the knees together. A modification of this is pressing the knees together with the legs extended.

8. Lying face down, raise the hips.

9. Lying face down, raise the legs one at a time.

10. Lying on one side, raise the upper leg.

Hip exercises must be done lightly at first to prevent injury to the pelvic ligaments. Moderate exercise, however, will aid in their recovery of tone.

More Advanced Exercises

After the third or fourth day the following more advanced exercises may be added to the above:

11. Lying on the back, raise the head and shoulders from the mattress, but make no attempt to sit up.

12. Slightly bend the knees, then raise the legs upward, then straighten the knees, with the legs upward; now move one forward and the other backward in a

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scissors movement. Perform this as easily as possible at first.

13. Slightly bend the knees and raise the legs, then extend them farther toward the head so as to partially elevate the hips. Do not carry this movement far enough to have a straining effect.

14. With the heels on the mattress against the hips, raise the hips a few inches and lightly sway them from side to side. In successive exercise periods raise the hips progressively higher and sway them farther to each side.

15. Walk back and forth on the bed on the hands and knees. When able to get out of bed walk about the room a little on the hands and feet two or three times a day.

16. Sit on the side of the bed (or if necessary in the bed) with the hands clasped behind the head; while resisting with the hands force the head backward, elevating the chest and drawing in the abdomen. Relax and repeat a few times. Later stand and stretch the arms overhead, raise the chest and draw the abdomen inward and upward, inhaling when raising the chest.

These exercises may be taken while lying on the back also. They have an excellent effect upon the abdominal and pelvic circulation. One or the other should be taken several times daily.

Repeated use of these simple movements will have an excellent strengthening and invigorating effect. They will help to restore girlhood charm and buoyancy more, perhaps, than any other single measure.

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CHAPTER XVIII

General Care Following Confinement

A GREAT many women never have an opportunity for full relaxation except that absolutely required during sleep, except during the lying-in period. For this reason most women who are not unusually vigorous should take full advantage of the opportunity and secure extra rest. There should not be immediate resumption of activities, and it would be better if these were not resumed in full for some time after childbirth. Over-exertion will do as much to weaken a woman as an excess of inactivity. I believe it would be safer to err on the side of too little rather than too much activity for the first several weeks following parturition.

The strong vigorous woman is likely to be over-ambitious and may take pride in her ability to get back into full duties quickly after delivery. She may not suffer, but this is not the safest procedure for most women today. For at least three or four weeks there should be only a gradual increase in household duties performed, and if this period can be extended to five or six weeks it would be still better. The physical culture mother who is normal in every respect should be able to judge by her own strength, energy and inner feelings what she can endure, though no attempt should be made to do all that one may feel like doing.

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Stair climbing should be avoided, as much as possible, for two or three weeks. If stairs must be climbed, they should be taken slowly.

At least once a day the new mother should secure complete relaxation. This may be for an hour to good advantage, but it should not be less than one-half hour for best recuperative effect. Nothing should be allowed to interfere with this rest period, during which time care is taken to secure complete relaxation of every muscle in the body.

Sufficient has been said regarding the need for a proper diet that it should not be necessary to further stress this important factor here. The woman should have become so accustomed during pregnancy to a natural and wholesome diet that by this time the selection of proper foods in proper combinations and quantities should be practically automatic.

If a woman so desires, she may use the milk diet to good advantage. It maintains her own strength and energy, it insures a good milk supply for the nursing infant, and it helps keep the breasts normal during the nursing period and later. The milk diet or any other diet best for the mother's health will not only provide an adequate amount of suitable milk for the child, but will be of help in preventing numerous disturbances common (but not natural) to infancy.

It is very important that the pregnant woman and the new mother prevent intestinal sluggishness. Constipation interferes with normal recuperation, with return of the uterus to normal and with general health,

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through absorption of wastes by-products. It also reduces the quality of the milk and may reduce its quantity. There are a number of foods that provide the necessary bulk for intestinal activity, but if necessary the woman may use a number of bowel aids on the market that provide either bulk or lubrication or both to the intestines. The exercises that have been given will be of benefit in keeping the bowels normal, as also will the drinking of adequate amounts of water, preferably between meals.

It has been stated earlier that pregnancy often produces added burden upon the kidneys. Even if these have come through pregnancy without damage, it is important for their preservation that there be no undue concentration of the urine with irritating wastes in solution. To prevent this, the mother should take plenty of water and fresh fruits or their juices, also green vegetables. Since she should have at least one quart of milk a day, this will further add to the fluid intake, so necessary for kidney preservation.

The external surface of the body has two important functions influencing the rest of the body. One of these is elimination and ventilation, the other is the effect upon the nervous system through the myriad nerve-endings in the skin. The first functions should be aided by thorough and sufficiently frequent cleansing through ordinary warm baths. The nervous system should be toned through the skin through the aid of a daily cool bath. Any bath below body temperature, from which there is prompt and adequate re-

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action to warmth, is a bath having tonic effect upon the nervous system, the circulation and all the vital organs. It is not necessary to take hot baths for cleansing, and in fact they should be avoided for the most part; nor is it necessary to take extremely cold baths to secure a tonic reaction.

A bath too often neglected but one of benefit for all of the functions of the skin is the nude air-bath. An air-bath should be taken daily, in a thoroughly ventilated room if it is impossible to secure it out of doors or on a sleeping porch. If possible sun-baths should be taken at least three times a week for their direct effect upon the vitality of the mother and for their vitality and growth effect upon the child as well. Care should be taken to avoid over-exposure, but progression is important in the amount of sun-bathing.

The clothing should be light in color and weight, loosely woven and loose fitting. This permits air to reach the skin at all times. There should be no constrictions—except for the temporary abdominal bandage for a short time after delivery, if this is considered necessary.

As for exercise after complete recuperation from childbirth, a woman may gradually get back into any form of activity or sport or work in which she formerly indulged.

Too many mothers make as much work for themselves with one child as others make with a half-dozen children. While the care of a child is a vast responsibility, it is not one that should utterly weigh the mother

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down. It is possible to take even such important responsibility too seriously. Learn what is best for yourself and your child or children, and learn it so completely that you do what is best for all with the least effort and thought and with no worry. This will insure greater mental poise and calmness, which will react favorably upon self, children and husband.

Resuming Sexual Relations

There is a vast difference in opinions regarding the advisability of continuing sexual relations during pregnancy and the resumption of them following parturition. For the best good of mother and child it often is best that sexual relations be avoided during the period of lactation or nursing.

Another reason for avoiding sexual relations is a possibility of pregnancy. There is a very great drain upon a woman's vitality to nurse a child while at the same time being pregnant. Cows that are constantly milked when with calf have lime salts and other essential minerals drained from their system by the double demand of the milker and the growing animal, and thus become subject to tuberculosis. The same result may occur in the pregnant woman who is nursing. A third reason for postponing sexual relations is that it is practically impossible to determine when a new pregnancy does take place, since menstruation usually is not re-established while the woman is producing milk. It is almost impossible to tell when ovulation occurs if menstruation is suppressed on account of

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lactation and therefore one is at a loss to know the fertile and the infertile period and therefore conception may take place without one's knowledge. For these reasons it would be better that intercourse be avoided until the baby has been weaned.

Inasmuch as this rule will not be observed by the majority of men—or normally sexed women, perhaps—it may be said that intercourse can safely be resumed after complete involution of the uterus, or within about six weeks following childbirth. If intercourse is resumed during lactation it is only fair to the wife and the nursing baby that pregnancy be avoided. However, usually the health of the mother and the nursing babe will be better when sexual relations are withheld for a period of weeks or months.

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CHAPTER XIX

Recovery of Symmetry After Pregnancy

THE general belief is that women "just naturally" lose their figures after pregnancy and childbirth. The fact that many do lose girlish slimness, buoyance, grace and vitality has led to this general belief, but it is not necessary that there be such loss. Other factors enter into the case when a woman becomes fat and flabby or otherwise unattractive physically after childbirth. Through ignorance or indifference or resignation, carelessness is the usual cause for the undesirable changes that occur in most women after maternity. By following the general routine given below the new mother's figure may be recovered and her health improved. This routine may be begun within a week after delivery.

Upon arising, drink a glass or two of water, plain hot or cold, or with lemon juice added to taste. A good tonic effect will be secured if the first glass is taken hot and the second cold, though both glasses may be at any temperature desired.

After this should be taken the morning bath—a shower, spray, sponge, splash, wet-towel or tub. It should be slightly warm and completed within two or three minutes, after which a quick tonic (cool or cold) application should be given by the most convenient method of those given above. The body should then

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be rubbed vigorously with a coarse towel until a healthy glow is produced. This bath will have a very valuable tonic effect upon every part of the body.

Following the bath the daily exercises should be taken—provided they were not taken before arising, which should be the rule for the first two or three weeks. The exercises previously given may be taken at this time. Additional movements of more strenuous nature may be added from time to time after the first month.

Daily walks should be taken as soon as possible with safety, the distance to be gradually increased but never such distances as to result in pronounced fatigue. A woman should appreciate the value of regular housework, which, though limited in extent of muscular movement, is an excellent type of exercise. It should not be continued to fatigue. Sweeping is an excellent exercise after the first month or so, as it favorably influences the abdominal and waist muscles, the chest and the breasts. It should not be employed to the extent of strain.

One of the weakest parts of the body in many women is the lumbar region of the back. The muscles at the small of the back often are so weak that considerable strain results from backward bending. If this region is of normal strength, benefit will be obtained from backward bendings and rotations that influence the abdominal and waist muscles. During any backward bending it is important that the abdominal muscles be held fairly tight.

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Sufficient has been said regarding diet that little further need be said on this subject. The meals should be simple, without artificial flavoring, spices, condiments, etc. Over-eating and under-exercising are the combined cause of loss of figure and loss of health of most women—whether mothers or not.

The food should be vital—not demineralized, but as nearly as possible natural. The need for sweets should be satisfied by sweet fruits and honey, and perhaps limited quantities of the dark brown sugars.

The diet should be laxative, so that there will be preferably one evacuation for each meal of the day. If constipated there should be no hesitancy in using the fountain syringe or similar apparatus for the enema. The enema water should be neutral in temperature and not over two quarts in quantity.

The woman should secure ample sleep and relaxation. There will be times when it will be impossible for her to secure full amounts of sleep, but she should make up this loss if at all possible. If sexual intercourse is indulged in it should be complete and at such intervals that it does not deplete her vitality.

The new mother, in other words, should live as hygienically or as healthfully as possible. Not only she suffers from neglect of her health, but the baby and the entire family suffers. By living for her best health there will be a return of her former vitality, charm and beauty, and these should be even further accentuated.

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CHAPTER XX

Keeping the Breast Contour Attractive

ONE of the most frequent and most pronounced physical changes in the woman after pregnancy and lactation is loss of breast contour. Most women, in fact, suffer shapelessness of the breasts from these influences. Much of this loss is not necessary.

The youthful breast normally is firm and rounded. There naturally is variance in shape and size and to some extent a difference in consistency and internal structure of the breasts of women of different races and in women of the same race. But in those who have never borne children, that is until middle life at least, the breasts normally are hard, firm and elastic. They naturally become softer after the glands have been active, as after nursing. If a woman has had several children the tendency is for the breasts to become soft, flabby and drooping. Regardless of their original tone, breasts are inclined to soften greatly with prolonged nursing. If the breasts droop before pregnancy they will droop more following nursing. If they are firm before pregnancy and there is good general tone, the breasts usually can be brought back practically to original firmness and contour after lactation, provided nursing is not continued beyond a year and the general health and tissue tone is maintained at a high level.

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Many women have no fat in the breasts which makes them lose their contour more completely. After lactation they may assume almost a conical shape. When there is considerable fat in the breasts, yet not enough to sufficiently weight it to cause it to droop, the breasts may hold their pregnant shape even when general tone is not the best.

Regardless of the attractiveness of the general physique, sagging breasts are a defect that will mar any figure. Nothing will have an immediate or direct effect upon the structure, shape or functional activity of the bust. A procedure wonderfully effective in preventing or overcoming the sagging and drooping of the breasts is gentle rotary massage of the muscles supporting the breasts. This should be practiced both during pregnancy and after childbirth. It is best done by placing the thumb and fingers firmly on the tissue on the under side of the breast, and moving them in a circle of about two inches in diameter from ten to twenty times. Cover every inch of tissue in this way, at least three times daily. Firm pressure is to be given, but no deep pressure nor harsh manipulation. After the completion of each massage the breasts should be sponged with cold water, then gently patted until dry. But the following exercises will be beneficial to the bust through their favorable influence upon the whole body and upon the muscles and circulation immediately below the breasts and, therefore, of the breasts themselves. There are minute muscular fibers within the breasts which are attached to the

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chest muscles. By maintaining strong pectoral or chest muscles the breasts will be maintained in better contour.

1. Lying on the back with the arms extended outward in the shape of a cross, hold the elbows rigid and bring the arms straight upward to the vertical; lower and repeat. The arms may also be crossed over the chest, alternating one over the other.

2. Lying on the back with the arms reaching above the head, keep the arms straight and bring them upward and on down to the sides of the hips, returning overhead and repeating. As strength increases, some such light weight as a book may be held in each hand during these two movements.

3. Lying on the back or sitting or standing with one fist held in the other hand in front of the chest, force one hand far to the side with the elbow as far backward as possible; relax a second, then force the opposite elbow to the rear. Repeat, but relax momentarily after each movement.

4. Lying face down with the palms on the floor or bed immediately beneath the shoulders, push upward with the arms until the elbows are straight. Keep the hips on the floor (or bed). Do the same exercise also with the fingers pointing directly inward instead of forward, the elbows bent but well away from the body at start.

5. Stand facing the wall with the hands on the wall at shoulder height, arms straight. Bend the elbows slowly until the chest touches the wall, then force the

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trunk backward until again erect, by straightening the arms. As the strength increases the hands may be placed higher and higher on the wall for this movement. However, avoid straining. Keep the abdominal muscles taut.

6. Stand with the feet together with arms directly forward and the palms touching, inhale as the arms are swung outward and backward, turning the palms upward during the movement; then reverse the movement, exhaling. This may be alternated with or followed by swinging the arms backward and endeavoring to strike the backs of the hands together in the rear.

7. Standing with feet together and arms outward, swing the arms across the chest in front of the chin. After a few times cross them in front of the abdomen several times, then cross them at shoulder height while holding the head backward.

8. With the feet slightly apart, reaching diagonally forward upward with one hand and downward backward with the other; quickly change the positions of the arms by swinging the lower arm upward and the upper arm downward, twisting the body sufficiently to get a good spinal rotation and a stretch upon the chest and abdomen.

9. Standing with the arms flexed at shoulder height, elbows as far back as possible, hold the elbows back while rotating the body first to the right and then left. Keep the rotation as much as possible above the hips.

10. Stand with the hands behind the head, the el-

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bows out and back; quickly pull the head forward and bring the elbows forward and together, at the same time breathing deeply and elevating the chest while contracting the chest and abdominal muscles. Relax and repeat.

11. Stand or sit with a towel against the back of the head, held with the hand in front; pull forward with the arms while resisting with the neck muscles. Relax a moment and pull backward with the head while resisting with the hands.

12. Stand in a doorway with the palms against the casing and move as to force the body through the doorway while resisting with the hands, giving way slowly so that the body goes through the doorway, the elbows and shoulders far back.

13. Stand in boxing position, one foot forward, arms flexed at the sides; strike forward with one arm, twisting the body so the other (flexed) arm goes backward. Then strike with the other arm and rotate the body in the other direction. Repeat several times, making this movement energetic as soon as strength and energy permit.

These exercises tend to keep the tissues of the breast firm. If taken regularly and with considerable vigor, the breasts should recover their former size and shape after lactation has terminated. If the breasts have sagged before pregnancy, these exercises should aid them to recover normal contour and tone. To be of greatest benefit in this effect the exercises should be taken both before and during pregnancy. Prevention

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of drooping is easier than correction after the drooping has become more or less pronounced.

Swimming, golf and tennis are excellent forms of exercise for women, but usually are not to be recommended for longer than the first four months of pregnancy. Running is a very excellent exercise before pregnancy, having a powerful effect upon the circulation. But it should not be indulged in after the first two months of pregnancy. Basketball is an excellent exercise for developing and maintaining the figure and for toning up and preserving the contour of the bust; but even though the general health will permit, it usually should not be played longer than two or three months in pregnancy.

Of the above exercises only a few should be taken at first, and these performed only a few times. Repetitions may be increased as strength increases, also other movements may be added. The exercises given earlier in the book that call into action the various muscles of the abdomen and sides particularly should be used regularly.

The use of milk in the diet of the pregnant woman has been discussed in the chapter on diet. Liberal quantities of it in the diet will have a very beneficial effect in securing and maintaining a firm condition of the breasts. Without the best food exercises for the breast will be only mildly effective; but however good the diet may be in every other respect, it will be of greater value if milk is used regularly as a part of it. Milk in the diet will more surely provide the necessary

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quantity of richly nourishing blood to keep the breast tissues normal, if the surrounding muscles are properly exercised. The strict milk diet is of special value for improving or preserving breast contour. Whether or not it is taken, the pregnant woman and the nursing woman should include considerable milk with her regular meals. The milk diet, or liberal quantities of milk in the diet tends to normalize the functions of the ovaries and of all pelvic organs, as well as those of all other organs, structures and fluids of the body. Ovarian secretion has considerable to do with breast contour, and unless this is normal and in normal amounts after the nursing period the breasts are almost certain to relax. Milk, through its general value and effects upon the glands, helps to tone up the breasts.

The two extremely valuable and important means of preserving an attractive contour of the breast, as well as a normal figure in general, then, are exercise and milk, especially the full milk diet. The human mother should lose her figure through pregnancy no more than does the mother of any species of lower animal. A normal and justifiable pride in her physical body will lead any woman to observe in every detail every phase of health and personal hygiene that will aid her in maintaining or building her health to the highest degree possible, in preserving youthfulness of body in function and appearance as well as youthfulness of mind. Motherhood then will be in no way nor in any degree a handicap nor a misfortune, but a benediction, and mother and child will be mutual blessings.

(THE END)

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